The JOURNAL OF HIGHER EDUCATION

JUNE
1931

VOLUME II
NUMBER 6

THE JOURNAL OF HIGHER EDUCATION is published to serve as the professional journal of the sixty-seven thousand instructors and administrative officers in the colleges, universities, and professional schools of the United States. Among the associate editors there are representatives from every department of academic responsibility in higher education. With their assistance the editorial staff seeks nine times a year to bring to its constituency reports of the most significant investigations in the instructional, administrative, personnel, and curricular problems in all branches of higher education.

EDITORIAL STAFF

W. W. CHARTERS, *Editor*

W. H. COWLEY
J. MACLATCHY *Assistant Editors*

F. LORD, *Business Assistant*

ASSOCIATE EDITORS

W. C. BAGLEY
J. C. CHRISTENSEN
ALGERNON COLEMAN
WILLIAM LLOYD EVANS
CHRISTIAN GAUSS
ESTHER ALLEN GAW
M. E. HAGGERTY
H. E. HAWKES
HENRY W. HOLMES
CHARLES W. HUNT
H. C. HORACK
DOUGALD C. JACKSON
ARTHUR J. KLEIN
A. C. KREY
L. C. MARSHALL
J. P. MITCHELL
THOMAS V. MOORE
SHELTON PHELPS
WILLARD C. RAPPLEYE
FLOYD W. REEVES
PETER SANDIFORD
CARL E. SEASHORE
JOHN SHAPLEY
LOUISE STANLEY
E. N. TRANSEAU
B. L. ULLMAN
LUTHER WEIGLE
ERNEST H. WILKINS
JESSE FEIRING WILLIAMS
C. C. WILLIAMSON
JAMES M. WOOD
GEORGE A. WORKS
C. S. YOAKUM

··II CONTENTS II··

THE THREE–YEAR PLAN — EARL J. McGRATH — 283

The Assistant to the Chancellor of the University of Buffalo has described the plan of that institution to enable superior Freshmen to telescope courses in order to complete the requirements for the degree of Bachelor of Arts in three years instead of four.

CHANGES IN THE COLLEGES — KATHRYN McHALE — 289

There is great need that each institution be able to profit by the experiences of all other institutions. A plan to achieve this end was initiated by the American Association of University Women under the leadership of the Director, Kathryn McHale, professor of education at Goucher College. A two-year study of current changes and experiments in higher education was set up which is summarized in this article.

WHO GOES TO COLLEGE? — EDWARD F. POTTHOFF — 294

The relationship of the occupation of a youth's father to his likelihood of attending college is here judged. The fathers of the majority of these Freshmen at the University of Chicago belonged to the so-called "non-labor" groups. The author of this article belongs to the faculty of the University of Illinois.

AN EXPERIMENT AT WELLS — C. O. WEBER — 298

With the alleged purpose of giving in concrete form the results of a year's experience using the reading period, Mr. Weber, of the Department of Psychology, Wells College, becomes a defender of the faith that is his.

LIBRARIES IN LAND–GRANT COLLEGES — FRANK K. WALTER — 305

This third article in the series summarizing the Survey of the Land Grant Colleges and Universities is devoted to the libraries. This interesting résumé has been prepared by Mr. Walter, librarian at the University of Minnesota.

STUDENT RATINGS OF TEACHERS — ALFRED R. ROOT — 311

Mr. Root, a member of the Department of Psychology at Hamline University, presents a new type of rating scale of teachers by students. The points of the articles are illustrated by the accompanying revised form of the critique.

METHODS IN SCIENCE TEACHING — ELLIOT R. DOWNING — 316

Mr. Downing, of the Department of Education, University of Chicago, here tabulates the findings of sixteen experimental studies of the demonstration versus the experimental method used in science teaching. He then gives a general summarization of the status of these methods in the light of such investigation.

[*Continued on Next Page*]

CONTENTS *(Continued)*

GAINS OF THE HIGHEST AND LOWEST — J. A. CEDERSTROM — 320

The students having the highest initial attainments in five groups in zoölogy tend to make lower gains than those having the lowest initial attainments. But in spite of their greater gains the latter group do not reach the final attainment of those having the better start. These are the conclusions of Mr. Cederstrom of the Department of Zoölogy, University of Minnesota.

TEACHING COLLEGE STUDENTS HOW TO READ — F. W. PARR — 324

Mr. Parr describes a program in remedial reading at the University of Iowa and summarizes the results of such assistance in the light of grade-point averages. A longer report of his study is soon to be published by the University.

SUMMER OPPORTUNITIES — ARCHIE M. PALMER — 331

Courses for the college teacher and administrative officer are being given this summer in many colleges and universities. Problems of instruction, of curriculum-making, of administration, and of personnel are mentioned in the roster of courses presented here by the Associate Secretary of the Association of American Colleges.

WITH THE TECHNICIANS — 337

A summary of research studies and investigations at the university level, with pertinent comment on results.

THE REPORTER — 341

Events of news interest in college and university circles during the past month; accomplishments and projected plans in the field of higher education.

EDITORIAL COMMENTS — W. H. COWLEY — 349

REVIEWS — 352

"Essays in Comparative Education," by I. L. Kandel; "Practices of Universities in Granting Higher Degrees in Education," by Frank N. Freeman; "A History of Science and Its Relations with Philosophy and Religion," by William C. D. Dampier-Whetham; "College Organization and Administration," by Floyd W. Reeves and John Dale Russell; "American Society: Interpretations of Educational and Other Forces," by Charles F. W. Thwing; "Good-bye to Western Culture," by Norman Douglas; "Early Protestant Educators," edited by Frederick Eby; "Education for Business Management," by James A. Bowie.

IN THE LAY MAGAZINES — FRANCES KIRKPATRICK — v

The JOURNAL OF HIGHER EDUCATION is published monthly, except during July, August, and September, by the Ohio State University; 35 cents a copy; $3.00 a year (Canada and foreign $3.50). The address of the editorial and business office is Bureau of Educational Research, Ohio State University, Columbus, Ohio.

The Journal of Higher Education JUNE, 1931 II

The Three-Year Plan

By EARL J. McGRATH

An Account of the Shortened Curriculum for Superior Students at the University of Buffalo

IN ITS three-year plan the University of Buffalo has attempted an experiment in which students of superior ability have the opportunity to complete the requirements for the degree of Bachelor of Arts in less than the customary four years. It is the purpose of the University to expedite the process, not by a superficial or abbreviated treatment of subjects, but by a finer integration of the work of the secondary school and the college, and by encouraging superior persons who can work independently to accomplish more in a given unit of time. The thought may not be revolutionary, for others are performing similar experiments, but the practice, as it is working in the University of Buffalo at the present time, however far from utopian, offers many suggestions which may be provocative of thought for those who are interested in the reconstruction and revitalization of the educational enterprise. In the hope that such may be the case, a brief résumé of the objectives, the methods by which we are realizing them, and certain objectionable features of the system are here presented.

The reasons for such a plan are numerous. Perhaps to the student the strongest appeal is the saving in time and money, although there is no doubt that the distinction incident to membership in such a group was also attractive, since interviews with these students subsequent to their registration showed that in some instances they were decidedly aware of their intellectual superiority.

Although consideration was given by the administration to the economic saving to the student, it was of secondary importance in the determination of the plan, the educational features being primary. In the first place, it is evident that in many of our

educational methods we cater to the mediocre, if not to the dull, while the great opportunity to develop the talented student is lost in the system of large-scale production. A recent study made at Ohio State University shows that there is no significant correlation between ability and persistence in higher education; that is, we lose about as many of the good students as the poor. "Some sort of a constructive program with the needs of the superior student in mind should be instituted. The work of one outstanding student cannot be equated to that of any number of inferior students. We have here the problem of equating the output of one motivated genius with that of numbers of inferior students."[1] It is probably true that many of the superior students would remain if the process were sufficiently stimulating to make it an adventure rather than a stultifying experience. Many colleges, including the University of Buffalo, have overcome this condition by modifying their programs in recent years through the introduction of honors courses. The three-year plan is a further advance in this direction. It gives the student a larger amount of work, and it places him in a group of superior intellects where his best efforts are constantly challenged. One professor noted that in this class he had great difficulty in covering the material in the time allowed, for the discussion constantly interrupted any definite system of progress. Granting that the discussion is pertinent, education is thus at its best.

[1] Edgerton, H. A., and Toops, H. A. *Academic Progress.* Columbus, Ohio: Ohio State University Press, 1929. p. 129.

Further, it is patent that an excessive amount of time is spent in American secondary schools and colleges in the accumulation of knowledge preparatory to specialization in an elected field. The three-year plan itself will materially diminish this time, and other supplementary projects will facilitate the process. At the present time, members of the administrative staffs of both the University of Buffalo and the secondary-school system of Buffalo are mutually concerned about a closer articulation in these organizations, and already conferences have been inaugurated for the formulation of programs, the consummation of which will materially facilitate the type of thing being attempted in this plan.

IN THE most recent class to enter the University, 82 per cent of the matriculants offered more than the fifteen units of secondary-school work required in New York State colleges, some having as many as eighteen units. A unit represents approximately a year's work in a subject. Those who have an excessive number of units have been given the privilege of taking examinations in courses not required for admission, and, if they are successful, the equivalent college credit is allowed. When this is generally known in the high schools many of the superior students will be motivated to increase their programs in anticipation of college work, and the process will not only be shortened, but it will be made a more continuous and interesting experience.

Finally, at the University of Buffalo, nothing has been found to be

more predictive of success in college than success in high school. Therefore, it was thought that a small group of superior students from local and suburban high schools should be allowed to register with the idea that they could complete the requirements for the B.A. degree in three years.

Accordingly, a letter was sent, at the direction of the high-school principal, to all students who stood in the highest fifth of the graduating class. In certain cases where students did not stand in the first fifth of their graduating class, but had by manifest interest in extra-curricular activities or in fine arts shown signs of initiative and resourcefulness, an exception was made, and, except in one instance to be noted later, this policy seemed empirically to justify itself.

THE result was most gratifying since twenty-four students responded to the first invitation. This group is sufficiently large to give some experimental validity and yet small enough to avoid the danger of the mechanical type of education found in large lecture courses, although its repetition another year may disclose to us other criteria by which we can more completely judge its value. Of the twenty-four who entered, eighteen stood in the first fifth of the high-school class, the other six, although in the second fifth of the high-school class, had special qualifications to which reference has already been made. It is interesting to note that four of these six completed the year in the first fifth of their college class. Of the entire group, seventeen stood in the first fifth, three in the second, three in the third, and one in the fifth. A special program was arranged for this group. It is set forth below and compared with the schedule of the regular candidate for the B.A. degree.

General Curriculum	Hours per Week
English	3
General science	4
Modern language	3
Hygiene	1
Electives (2 courses)	6
Total	17

Special Curriculum	Hours per Week	
English	2	(to count as 3)
General science	3	(to count as 4)
Modern language	3	
Hygiene	1	
Electives	6	
Total	17	(to count as 20)
Elementary Psychology	2	(to count as 3)

It can be seen at once that the special curriculum requires no more actual hours of class attendance than the general, but its successful completion will gain for the student 20 semester-hours of credit. The English and general-psychology courses, although meeting only two hours a week, allow three hours of credit, and the general-science course, meeting only three hours, allows four hours of credit. The latter consists of two hours of lecture and two hours of recitation ordinarily, but in the special curriculum only one hour of recitation is required. It is assumed in all these "telescoped" courses that the same amount of material is covered in shorter class time, because of the superior intellects and greater ability to do independent work outside of class.

The English course for this limited group covers the same reading assignments normally required of Freshmen taking the three-hour course. It is assumed, however, that less class time will need to be spent on weekly exercises in grammar and short themes, that longer compositions written outside of class will furnish the limited group opportunity to find expression in writing, and that more rapid progress in the reading and appreciation of literature may be expected.

TABLE I

INITIAL READING-TEST RESULTS BEFORE PRACTICE[2]

	Lower "Study Group"		Superior Upper Fifth Group	
	Number of Words per Second	Percentage of Accuracy	Number of Words per Second	Percentage of Accuracy
(1)	(2)	(3)	(4)	(5)
Upper quartile..	4.5	81	4.8	93
Median score...	4.0	66	4.3	86
Lower quartile..	3.4	54	3.7	80
	After Reading Lecture and Practice of Four or Five Hours			
Upper quartile..	5.8	95	8.3	93
Median score...	4.8	87	7.5	89
Lower quartile..	4.3	73	6.6	83

The real innovation is found in the general-psychology course which ordinarily is not pursued by Freshmen. The attempt is to present all the subject-matter characteristic of the general course in psychology and in addition to introduce new material in the nature of techniques of study. The research executed by Mr. E. S. Jones, director of personnel research, in the how-to-study groups, and its application to those graduating in the lowest two-fifths of their class has been partially presented with success in this course in psychology. It offers suggestion and practice in the methods of study, note-taking, rapid reading, and memory exercises. That improvement can be made even in the case of superior students is attested by the records of the results of the work on reading habits found in Table I. The lower study group refers to the graduates of the lowest two-fifths of the high-school classes who took the special three weeks' how-to-study course. The superior group is constituted of the three-year group under consideration in this article. It is obvious that a considerable increase in speed was possible with no loss in accuracy. This work in technique of study is of such manifest significance even to superior students that its incorporation in the regular curriculum has been considered.

AT THE conclusion of the freshman year, the student would have 40 semester-hours of credit. This could then be augmented in two ways. Some students attended the summer session between the freshman and sophomore year, during which time eight hours additional credit could be secured. Others took advantage of the opportunity to try examinations in courses which they had never attended, but in which they had prepared themselves in high school or by unsupervised study. Thirteen of the 24 had hours in excess of the 40 found in the special curriculum at the end of the year.

It was hoped that at the beginning of the second year the majority of

[2] Jones, E. S. "Studies from the Office of Personnel Research." University of Buffalo, 1930.

these students would enter the honors division in the Senior College, a discussion of which cannot be brought in at this point because of its length. Suffice it to say that it is characterized by individual work under tutorial guidance. Only 8 of the 24 chose to finish in three years by the accumulation of 128 hours of credit. It is our conviction that the latter system is objectionable, especially for superior persons, but no pressure is exerted to coerce them into the honors group. It is hoped that many of the group will be sufficiently stimulated to remain for the fourth year and thus obtain a Master's degree.

In order to check the results of the system, the University was interested in making a comparison between this group and another of first-fifth graduates who were enrolled in the four-year program. Twenty-seven students in the latter category were selected and compared with the twenty-four in the three-year group. It was found that 13 of the 24, or 54 per cent, obtained a B average or better, while in the four-year group 11 of the 27, or 41 per cent, obtained a similar average. It must be remembered that in three classes the members of the superior group were competing against themselves while the students in the four-year group had only to compete with those of the lower fifths of high-school classes. There is, however, a significant difference in the three-year group in intelligence and achievement-test ratings. When their percentile scores were arranged in the American Council on Education Intelligence Test, the median was 83; in the Iowa State Content examinations, it was 81. In the four-year group, these medians were respectively 72 and 74. It might be mentioned that of the 7 who failed to stand in the highest fifth of their college class, 4 could have been eliminated by a consideration of their comparatively low intelligence-test scores. The one student previously mentioned finished in the lowest fifth of his college class. He was strongly urged not to enter, but was allowed to do so because he had been able to complete his high-school work in two and one-half years. It was manifest that his background was not good enough to keep pace with the others.

Although the system is in general satisfactory, there are some objections to it, and modifications will be made accordingly. Several of the students suffered physically from the strain and had to revert to the four-year program. In the future, therefore, consideration will be given to the general health of the individual as well as his mental qualifications.

THE demands on the students' time were so great in many instances that participation in extra-curricular activities was impossible; in fact, almost all social life had to be discontinued. This may turn out to be a serious limitation in the system, although it is probable that entirely too much emphasis is placed on social activities, and in many instances it is evident that persons of excellent ability are severely handicapped by this element in college life.

The men in charge of the special classes believed that they should meet the regular number of hours per week,

since a group of this sort was ideally constituted for discussion, and the diminished number of class meetings prevented a considerable amount of valuable exchange between members of the class and the instructor. It is, therefore, possible that the next group will meet twenty hours a week instead of seventeen. To do this, however, causes some difficulty in the arrangement of the schedules.

The three-year group has been criticized as being intellectually snobbish, and in some cases its members have considered themselves justified in asking for special privileges not allowed to other students. This, however, may be an indication of the independence of spirit and the progressive attitude so necessary in the person who is to engage in personal investigation. There is no immediate danger that we may be developing men and women who are excessively and antisocially individualistic in their thinking.

In conclusion, the advantages in the three-year plan may be summarized thus: it is much more stimulating to a superior student, it has great motivational advantage, it makes the educational process continuous, and it relieves the student of the burden of a certain number of hours' credit to be obtained in a four-year period; to the student it offers a saving in time and money, and brings him a considerable amount of prestige. It may be that in time membership in such a group will bring the individual as much distinction among his fellows as membership in the varsity football squad.

Changes in the Colleges

By KATHRYN McHALE

The American Association of University Women Study Higher Education

FREQUENTLY one hears lamentations from prophets of gloom at the dearth of changes and educational experimentation in the four-year college, and predictions are made that these colleges are destined shortly to the educational museum to take their place beside the "little red schoolhouse." The purpose of this article is to show how widespread are the spirit of experimentation and the resulting changes which point fair to prove that, if the liberal colleges of America continue as seriously in conceiving their part in educational progress, they will enter upon their greatest era of development.

The kinds of experiments which are described hereafter show comparatively how prominent new educational practices have become which a few years ago were looked upon askance as undignified and uneducative departures. The experiments are those discussed in the printed bulletins, reprints, or catalogues of twelve women's colleges (Agnes Scott, Barnard, Bryn Mawr, Goucher, Mills, Mt. Holyoke, Pembroke, Radcliffe, Rockford, Smith, Vassar, and Wellesley), twelve men's colleges (Amherst, Bowdoin, Colgate, Columbia, Dartmouth, Harvard, Haverford, Princeton, Wabash, Wesleyan, Williams, Yale), twelve coeducational colleges (Bates, Beloit, Bucknell, Carleton, Colorado, De Pauw, Oberlin, Ohio Wesleyan, Reed, Stanford, Swarthmore, and the University of Wisconsin). A more detailed study of source materials leading to a qualitative evaluation of these changes and experiments and those of other institutions is under way, and a preliminary report was presented during the Biennial Convention of the American Association of University Women.

A fundamental change based upon the recognition of individual differences among candidates is embodied in the growing importance of psychological tests, in the heightened interest in analysis of character and personality, and in the activity in new experimental educational diagnostic and predictive measures which converge in a consequent trend toward a liberalization of entrance requirements. All of the colleges are now using selective methods of admission, and state that they consider important the appraisals of academic records, character, ability, and promise. All use the standardized test as one test of admission. Certificates from approved schools are accepted with certain

added requirements by five women's colleges (Goucher, Mills, Pembroke, Rockford, Agnes Scott), eight men's colleges (Amherst, Dartmouth, Columbia, Bowdoin, Colgate, Wabash, Wesleyan, Williams), and the twelve coeducational colleges.

The examinations set by the College Entrance Board are required by Bryn Mawr, Smith, Wellesley, Vassar (or the New York Regents'), Haverford, Princeton, and Yale colleges, although the results of the experiment at Columbia College proved the psychological entrance examination to be twice as effective in predicting college success. Barnard is the only college which uses the psychological test as one method of entrance without further examination. The psychological test, in addition to other specified requisites, is required by Bryn Mawr, Mills, Mt. Holyoke, Smith, Vassar, Wellesley, Columbia, Princeton, Williams, Yale, Stanford, and Swarthmore colleges. In addition to other specifications, they are advised or required for entrance under certain conditions by Agnes Scott, Barnard, Pembroke, Amherst, Harvard, and Reed colleges.

The "highest seventh rule" is a method of entrance at Harvard and Radcliffe. As an experiment, a student who has completed in regular course a program of study in a good secondary school may be admitted without examination if recommended by his school, provided he or she has ranked in scholarship in the highest seventh of the members of a graduating class containing at least seven. The plan is intended for applicants residing in distant states and from schools that have not prepared students for College Board examinations.

The personal interview has become a method at Swarthmore. It is used by the Faculty Admissions Committee or representatives of the college in interviewing candidates whose school records place them in the highest group and whose intellectual life aspirations cannot be judged by existing measurements. The personal interview is desired or required under certain conditions by Pembroke, Haverford, Colgate, Bucknell, and Reed.

THE free elective system suggests not only a cluttered program, but the possibility of a scattered piecemeal education. The notion that individual choice is correlative with resulting interest has led to fewer required courses and a wider option of electives. There are similarities and differences in the courses proposed. All the colleges studied require physical education or training. Some specified courses in addition to physical education, varying from 3 to 36 units—Vassar specifies three units, Goucher thirty-six—are required of all students in all colleges except six.

An English course, or a qualifying test in the freshman year, is required of all students in twenty-six of the colleges studied. All make group or distribution requirements, demanding a number of unit courses with option. The number of units required varies from 10 or 12 to 60, with 24 or 36 frequently being the required number. The group or distribution requirement is an experiment prepared to combat the conventional piecemeal

education resulting from the elective system. It is a new development, a tendency to swing back from the free-elective system to a measure of fixed curriculums.

The six colleges that do not specify courses in addition to physical education are Radcliffe, Smith, Colgate, Princeton, Yale, and Harvard colleges. These colleges give a wide option of elective courses. When applicants pass certain qualifying examinations or meet certain standards, they may be exempted from some or all required courses except physical education at Radcliffe, Smith, Vassar, Wellesley, Colgate, Harvard, Stanford, and Swarthmore. Except for six colleges, all require certain courses or kinds of courses of Freshmen.

Practically the complete program for the freshman year, from 24 to 36 units, is mapped out at Goucher, Pembroke, Rockford, Amherst, Bowdoin, Colgate, Columbia, Dartmouth, Haverford, Wabash, Williams, Yale, and the University of Wisconsin. No specific requirements are made if certain qualifying examinations are passed or standards met for the freshman year in Bryn Mawr, Radcliffe, Wellesley, Harvard, and Swarthmore colleges. Numerous courses are open to Freshmen other than those "required for freshman year" in all of the colleges except Goucher, Amherst, Bowdoin, Dartmouth, and Williams.

PROVISIONS for independent study in institutions for higher learning began at Harvard in 1924 when the English Department adopted the tutorial system. Forms of this system are now found at Radcliffe, Mills (tutors in honors work in some departments), Harvard, University of Wisconsin (with some work only), and at Reed (in honors work). Mt. Holyoke has adopted the preceptorial system begun at Princeton and still used there. At Mt. Holyoke some provision for individual work in the major is made under the personal direction of the instructor, in accordance with the preceptorial system. Honors courses or courses of independent study instituted to encourage the intellectual life are offered in all but four of the thirty-six colleges studied, the exceptions being Goucher, Agnes Scott, Bowdoin, and De Pauw. Beloit has an independent-study plan in some departments only, and Bucknell in English only. Columbia, Princeton, Smith, Reed, and Swarthmore colleges are carrying on specific experiments in honors work, while each of the thirty-two colleges on the list is experimenting to some degree on different forms of honors work. An examination for honors work or independent study work is required by ten women's colleges, six men's colleges, and five coeducational colleges. Outside examiners take part in conducting the examination for honors in Mills, Rockford, Colgate, and Swarthmore.

A unique form of honors work is found at Dartmouth. Beginning with 1929, each year there are selected from the junior class a group of men (usually five) to be Senior Fellows during the following year. The selection is carefully made. A Senior Fellow, after his election, must be in residence at Dartmouth College during the academic year following his

election, and throughout the year must be in good standing as a member of the College. During the tenure of his fellowship, he has complete freedom to pursue the intellectual life at Dartmouth College in whatever manner and direction he himself may choose. He is not required to attend classes, nor to take any examinations, nor to pay any tuition fees to the College. At the end of his fellowship year, he is given his degree in course. Reed College allows independent study in the freshman and sophomore years. In anticipation of the independent work expected in the last two years, the student may devote a portion of his time (one-fifth or less) during the freshman and sophomore years to additional individual study in connection with one of his regular courses under the guidance of an instructor.

Another experiment used to promote a more unified intellectual experience is the comprehensive examination, which is required in the student's major subject by Mills, Mt. Holyoke, Radcliffe, Wellesley, Bowdoin, Dartmouth, Harvard, Haverford, Princeton, Wabash, Colorado, Reed, and Swarthmore colleges. Barnard, Bryn Mawr, Wesleyan, and Ohio Wesleyan require comprehensive examinations in such major fields as English literature.

A clear division is made between work of the first two years and the last two years at Princeton, Williams, Stanford, and Reed colleges. The four-course plan in the junior and senior years is the practice at Princeton with independent investigations in major or departmental study. At Williams sharp divisions of study occur between the first and last two years. Stanford University is divided into an upper and lower division. There is a clear division at Reed with the passing of junior-qualifying examinations at the end of the junior year.

The University of Wisconsin has just instituted a plan of division whereby a sharp line is drawn after the sophomore year. Attainments rather than credits place the student in a first group, second group, or third group. If he makes the first group, he has proved his ability and seriousness, and he is then allowed as much freedom from routine work as he can profitably use. He may even be granted a Master's degree, in addition to a Bachelor's degree, after four years of study. If he falls into the second group, he must apply for admission to the junior year. His application will be considered by a committee which will give weight to various credentials of merit. If he is in a third group, he cannot be taken into the junior class at all, but he may apply after a lapse of one year when his activities since leaving the University will be taken into account.

ORIENTATION courses offer another attempt to unify subject-matter fields. Orientation courses, other than mere survey courses in a subject, are scheduled at Mills, Pembroke, Rockford, Vassar, Colgate, Columbia, Dartmouth, Wabash, Bates, Beloit, Carleton, De Pauw, Ohio Wesleyan, and Reed. All of these colleges continue to experiment with such courses. The provision of "Freshman Week" or "Freshman

Days" to assure more expedient adjustment to college life is made at Bryn Mawr, Mt. Holyoke, Colgate, Bates, Beloit, Carleton, De Pauw, Oberlin, and the University of Wisconsin. Other special treatment of Freshmen, such as the Freshman Dean or Faculty, Freshman Advisers, or Freshman Lectures may be found at Pembroke, Smith, Vassar, Columbia, Dartmouth, Harvard, Wesleyan, and Yale.

The freshman year in Yale is common to both undergraduate schools, Yale College and the Sheffield Scientific School. Its function is to prepare first-year students for the more advanced work in the two Schools and to assist them in making a wise choice of courses. The general aims of the freshman year are to secure the best teaching available, to maintain solid standards of scholarship, and to help students to find themselves. Yale makes the most careful attempt to meet in full the peculiar demands presented by the entering student. Not only is a special dean provided, but also a special faculty; a faculty in the selection of which the most careful attention is paid to the ability and power to teach which are most indispensable if immature students are to be properly treated. Only teachers of well-tested efficiency are selected. The plan really results in the formation of a small college for Freshmen inside the larger one.

Colleges in which qualified students may spend the junior year abroad in the study of foreign languages, as stated in their catalogues, are: Smith, Bryn Mawr, Mt. Holyoke, Vassar, Wellesley, Beloit, and Swarthmore. Colleges which have participated in the plan of the University of Delaware for study abroad in the junior year, not stated in their catalogues, are: Goucher, Mills, Rockford, Amherst, Colgate, Columbia, Dartmouth, Wesleyan, Williams, Carleton, Colorado, Reed, and the University of Wisconsin.

OTHER experiments deserve mention. The nursery school provides facilities for child study as a part of the work in the fields of education, psychology, or euthenics, depending upon the college, in Mills, Smith, Vassar, and Wellesley. In most departments at Bryn Mawr there is a major course of five hours a week for two years, a prerequisite for advanced courses. At Radcliffe courses are classified as full courses or half-courses according to the amount of work involved. Lecture courses are held in Columbia giving summary views of fields they cover without final examinations or marks, each counting one point toward the degree. In Reed most courses cover the entire year. In general, there are no semester examinations, only the comprehensive examinations at the end of the year. No course in English composition is offered below the junior year. Small classes are the rule since close contact of teachers and students is desired.

The fourth year of the Experimental College for Men of the University of Wisconsin began last autumn. In its three years of existence "it has produced distinctive educational results in the students who have subjected themselves to its discipline." Three major objectives are

being tested: first, greater integration of the materials to be studied in the freshman and sophomore years; second, greater informalization of the teaching procedure; third, greater socialization of the student. The college is a part, although it is a separate school, within the College of Letters.

This, sketched briefly and within broad lines, is a sampling of the kind of experimentation and change that may be found in the liberal-arts college. They have made noteworthy attempts to deal with the problem of a more effective intellectual life for the students. Their experiments have challenged students to venture in education, and have added interest and zest to the process. To be sure, in their zealousness over the development of newer practices, they have not always stopped to consider their qualitative value in terms of origin and their philosophy of higher education. But this, of course, is not as significant in their educational development as the fact that liberal colleges have changed. Their past is not lacking in glory; their present status is, for the most part, healthy and promising; their future is bright with hope. Their fundamental philosophy will always make them different from other educational institutions, and with this added conception of the college as an educational laboratory the prognosis of their contribution in developing the intellectual life of students is limitless.

[Vol. II, No. 6]

Who Goes to College?

By EDWARD F. POTTHOFF

The Selective Character of Education at the Collegiate Level

THE growing popularity of our institutions of higher learning is indicated by the fact that the enrollment in American colleges and universities increased 613 per cent during the period from 1890 to 1928, whereas the increase in the total population during the same period was only 92 per cent. Furthermore, in 1890 approximately 2.4 per cent of the people of college age were pursuing a higher education, whereas the figure for 1928 was 11.8 per cent.[1]

In view of this large increase in the proportion of people going to college, it is interesting to note that the class of students who entered the University of Chicago as Freshmen in October, 1924, was found to be markedly

[1] United States Office of Education. *Statistics of Universities, Colleges, and Professional Schools: 1927–28.* Washington: Office of Education, 1929. pp. 3, 4, 8. (Bulletin No. 38)

selective in character when certain economic and social factors were considered. One of these factors may be stated in terms of the occupational class to which the students' fathers belonged, children who came from the higher salaried and better-educated classes having by far the best chances of entering upon a college education, whereas the chances for those coming from occupational groups which require the least skill and command the smallest remuneration were relatively small. A second factor which revealed the selective character of the students studied is the mortality of the fathers, a factor which appreciably conditioned the opportunities for obtaining a higher education. Finally, those individuals whose fathers were college graduates had unusually fine prospects for entering the University.

That occupational pursuit is an important matter in the lives of a large majority of people need hardly be questioned. The occupation of the father, being often the main, or even the only, source of income determines to a great extent the wealth and the degree of economic security of the family. Occupation helps to determine the advantages which members of the family will have in the way of travel, books, magazines, recreation, and other social and intellectual necessities and luxuries of life. The place of residence, the stability of residence, the father's associates during the working-day, and the friends and acquaintances of the entire family are virtually selected because or through working conditions. Thus the occupation of the father influences greatly the social status and relationships of the family, and helps to determine what they think and what their outlook on, and opportunities in, life shall be.

In view of these facts it is both interesting and important to determine the extent to which the various occupational groups comprising the population at large were represented among the students entering the University. In carrying out this portion of the study only those students whose homes were in Chicago were considered because of the fact that the distribution of occupations varies from place to place, particularly between urban and rural communities, and because the members of the class as a whole came from places which are widely scattered. It was then possible to use the census report for 1920 in determining the number of men in Chicago who were engaged in various occupations. Moreover, the census data are given for certain age-groups, the oldest group including the ages of forty-five and over. Since the occupations of workers vary considerably with age, and since the ages of the fathers of these students may be assumed to average more than forty-five years, only the workers in this oldest age-group were considered.

THE occupations both of the men in the population at large in Chicago and of the fathers of the students were classified into the eight groups listed in Table I. The first group, the proprietors, includes all owners in all fields with the exception of the skilled artisans who own their shops and who represent a group of

"small owners." The proprietary group includes, for example, bankers, brokers, manufacturers, merchants, publishers, and owners of mines and of wholesale and retail stores. They represent, therefore, the wealthiest class, and they control economic power. The group of skilled tradesmen includes the artisan-owners just referred to, as well as skilled workmen employed by the proprietors of large or small establishments. The semi-skilled trades group includes men engaged in transportation service, public service, and personal service. The nature of the remaining groups is so well known that it seems unnecessary to define them.

TABLE I

PERCENTAGES OF ALL MEN IN CHICAGO WHO WERE FORTY-FIVE YEARS OF AGE AND OVER AND FATHERS OF STUDENTS LIVING IN CHICAGO WHO ENGAGED IN CERTAIN OCCUPATIONS

Occupational Group	All Men of Forty-five Years and Over	Fathers of Students
(1)	(2)	(3)
Proprietors	7.8	42.3
Professional service	5.1	18.6
Managerial service	6.2	8.6
Commercial service	6.0	9.1
Clerical service	9.3	2.6
Skilled trades	29.6	13.8
Semi-skilled trades	19.1	4.7
Unskilled laborers	16.9	.3
Total number	236,256	383

According to Table I, the wealthiest occupational group, the proprietors, comprised 7.8 per cent of the population at large, but it included 42.3 per cent of all students entering the University. The professional or best-educated group was also unusually well represented in the student group, since it constituted 18.6 per cent of this group although it included only 5.1 per cent of the general population. On the other hand, the unskilled laborers, or poorest group, comprised 16.9 per cent of the men in the city as a whole, but it had only a single representative in the University. The first five groups listed in the table are usually designated as the "non-labor" groups. When they are combined, they are found to have had more than four times as many representatives in the University as the remaining or labor groups, although the members of the latter combination were twice as numerous in the population at large as those of the former.

THE facts which have just been cited testify to the selective character of the students included in this study. It is clear that the chances for going to the University varied significantly with the social, educational, and economic status of the fathers' occupations. These chances were by far the greatest among the proprietary or wealthiest class, and among the professional or best-educated class; they were higher among the non-labor than among the labor groups, and higher among the skilled than among the semi-skilled tradesmen; and they were by far the lowest among the occupational groups which require the least skill and bring the smallest financial returns. In brief, the opportunity for securing a college education was conditioned markedly by the occupational status of the father.

The second factor to be considered in determining the selective character of education at the college level

was the mortality of the fathers of students. Except for the more fortunate economic groups, the death of the father may bring with it various kinds of sacrifices by the children, including loss of educational opportunities. A quantitative indication of this condition among college students was obtained by comparing the mortality rate among the fathers of students with that for men of the same age in the population at large.

The study revealed that 10.1 per cent of all students who entered the University of Chicago in 1924 had lost their fathers by death. Reference to the *United States Life Tables* showed that the mortality rate among men of the same age in the general population was 18.3 per cent.[2] The difference between this figure and that for the fathers of the students, 10.1 per cent, is large and significant. The comparison indicates that the opportunity for entering upon a college education was conditioned very markedly by the mortality of the father.

The final selective factor considered in this study was the education of the fathers of the students, the specific facts involved being that the fathers were, or were not, college graduates. About 18.6 per cent of the fathers of the entering students were found to be college-bred. The fathers of these students would probably have been in college some time between 1890 and 1900 if they attended at all. In 1890 only 3.6 per cent, and in 1900 only 4.4 per cent of all men of college age were actually attending college.[3] It is clear, therefore, that the students considered in this study constituted a highly selected group with respect to the education of their fathers. A child whose father was a college graduate was much more likely to have the opportunity of entering the University than one whose father was not college-bred.

That the explanation of the condition just cited is to be made in part in economic terms is indicated by the fact that 73 per cent of the fathers who were college-bred were engaged in professional occupations, and that 93 per cent of them belonged to the non-labor groups. Case studies of individual students also showed that the environment in a home where the father was a college graduate was usually such as to place a constant emphasis upon the importance and value of securing a college education and to pave the way for undertaking it. On the other hand, the environment provided by the father who was not college-bred was frequently lacking in these advantages.

[2] *United States Life Tables 1910.* Washington: Bureau of the Census, 1916. pp. 22–23.

[3] United States Office of Education. *Statistics of Universities, Colleges, and Professional Schools, 1927–28.* Washington: Superintendent of Documents, 1929. pp. 3, 4, 8. (Bulletin No. 38)

An Experiment at Wells

By C. O. WEBER

The Will to Learn as Exemplified by the Reading Period at Wells

WE ARE learning so much about pedagogy that a certain gloomy professor of law says, "We are forgetting how to teach!" Pedagogy is concerned with method, and the validity of any method depends on the probity of the goal which called it into existence. The bewildering array of new methods, whether they appear in primary, secondary, or in collegiate education, exhibits a revolt against a threadbare and ponderous pedagogy, which has grown up in response to the false belief that the graces of education are bestowed upon passive students. The new ideal of education is isolated for us by a discerning scholar, the late G. Stanley Hall. Whether we consider the Montessori method, the project method, the socialized recitation, honor courses, or the tutorial system, the ideal of self-education emerges in clear outline. The reading period is the newest addition to this highly significant class of methods, and in it the ideal of self-education ceases to be implicit: it emerges as a consciously formulated ideal. The reading period[1] is, we believe, a potential agent for realizing the ideal of self-education, provided the educators concerned remember the goal for which the method was fashioned. But the new advantages involve corresponding risks, as the actual administration of a reading period will show.

The Wells project, under the initial sponsorship of President Macmillan, follows in the wake of the prior experiments at Harvard and Radcliffe and, in partial form, at Cornell University. The reading period at Harvard is part of a unique program embracing honor courses, comprehensive examinations, residential units ("houses"), and tutorial work. All of these ventures except the last exist at Wells College. The reading period is not a complex and inflexible pedagogical device, but is highly adaptable to the requirements of locality. The basic features of it, however, are not so alterable; we may indicate them as follows: On the side of method the reading period consists of a number of consecutive days or even of weeks during which ordinary classroom, laboratory, and tutorial work is discontinued. In place of these standard pursuits, the student invests his or her time in independent study: reading and thinking in the library, experimenting and thinking

[1] We prefer the designation, "period of independent study," but employ the term "reading period" as a briefer designation.

in the laboratory. The student is not wholly without guidance.

The reading period continues the regular courses, and professors are expected to prescribe carefully selected materials for study. This leads us to say something further about the matter of content, for the reading period is not necessarily limited to changes of method. Since the method of study is to be independent, the subject-matter pursued must not be of the narrow and routine type which robs study of initiative. Professors, therefore, reserve for the reading period problematical and not mnemonic materials. The independent use of wits, not of memory, is the object which the reading period is intended to achieve. Not only is the material of the problem variety, but there should be a range of problems and of references concerning them from which the students may choose. The knowledge gained during the reading period should be tested in some way, by papers, or by oral or written examinations. The chief reward which the period is intended to secure is not a matter of material content. The immaterial goals, although they escape the tools of psychometrics, are real, and are discussed in later paragraphs of this paper.[2]

THE essential method of the reading period briefly stated is to allow every student to work as an honor student—in the Oxford sense—for a brief period of time. The flexibility of the method is made evident by its use. The special features at Wells College during the year 1929–30 were two reading periods, one at the end of each semester, just preceding the examination period. The period for the first semester was twelve days in length. At the end of the second semester, Seniors had a period of three weeks for independent study, devoted to a review of four years of work, in preparation for comprehensive examinations. The other three classes, varying somewhat, had a reading period of about seventeen days. Unlike Harvard and Radcliffe, the reading period at Wells was extended to Freshmen. It was not expected that they would use this period to the same advantage as the upperclassmen.[3] Two considerations justify the extension of the reading period to Freshmen at Wells: First, freshman courses are not generally new as fields of study. The so-called "new courses," psychology, sociology, and economics, begin with the second year. Second, Wells Freshmen, as past surveys show, have high general intelligence, a fact which makes independent work in their case less venturesome. Independent work is not so easy to administer in courses that are highly technical, courses in which good students working alone find themselves lost. Higher mathematics, chemistry, and medicine are types of courses in which self-education becomes difficult. There are other courses, particularly language courses, in which daily drill is essential. For these reasons, not all departments are willing to adopt the method of the reading period. Harvard, Radcliffe,

[2] Lowell, A. Lawrence. "Self-Education at Harvard College," *Journal of Higher Education*, I (January, 1930), pp. 65–72.

[3] *See* author's article in *School and Society*, XXVIII (October 27, 1928), pp. 516–19.

and Cornell found that not quite all departments were willing to dispense with classes and laboratory work. At Wells, the same difficulty emerged to obscure the experimental conditions. However, all Wells students had a reading period in some courses. A few classes were continued during each period, about twelve for the first and about seventeen for the second semester; and most of these reduced the number of appointments. An essential feature of our experiment was the institution of conferences with instructors — unlike Radcliffe and Harvard where tutorial work was discontinued. Professors were expected to maintain office hours for the purpose of giving conferences to students who requested them. Technical courses, difficult to pursue alone, especially require tutorial aid, but this aid must be independently sought in a scheme of self-education.

OTHER experiments, such as research work in a nutritional clinic, have the advantage that results are likely to be immediate and measurable. The Harvard experiment aiming to add to spiritual stature deals with imponderables whose quantification is rather difficult. In this quandary, anxious to measure the effects of the reading period on intellect and character, we may end by measuring something else and by forgetting the difference. Conscious of this pitfall, we present, for what they are worth, the following tests of the value of the reading period. First, we give the main points of student and faculty opinion, a study suggested by the interesting reports of President Comstock of Radcliffe. Second, we submit a few quantitative studies of the mutual relations of intelligence scores, marks, and the reading period.

A questionnaire on the reading period was answered by 230 students. These opinions are representative, since only 23 students failed to make returns.[4] Two types of data were gathered by the questionnaire: answers to specific questions requiring affirmative, negative, or numerical statements; and requests for spontaneous objections and approvals regarding the reading period. The first type of data appears in Table I, and the spontaneous material is reported in Table II. A given item of the questionnaire was not always answered by all students. Hence, the total number of answers to any item (Column 1) is always less than 230, the total number of students who filed returns. Columns 2 and 3 give the answers, whether "yes" or "no," in terms of percentages. In general, this summary of opinion exhibits some "contrasts," as does the Radcliffe report. But those that favor the reading period are always in the majority. The approval of the reading period, in fact, approaches unanimity on the first three items (*see* Table I), all of which bear upon the principle of the reading period, irrespective of the form of its administration at Wells. The remaining answers suggest the changes required to bring practice into the favor which the principle of the reading period wins.

The willingness of the students to

[4] Some selection of cases is implied by the fact that the 23 students who did not reply to the questionnaire were below the average, both as regards grades and intelligence quotients!

dispense with the instructors, one can imagine, will arouse diverse sentiments in professorial minds: some will feel vague alarm, others will nod, grimly, in recognition of familiar assurance, while the sardonic reader will find in the report sufficient refutation of the idea that a reading period is required to develop independence. Independent study is the other extreme. In the Radcliffe experiment, both lectures and tutorial conferences were suspended during the reading period; at Wells, although lectures were suspended, conferences with instructors were encouraged. Table I shows that 274 conferences were sought, averaging about two for each student. The report of the faculty, however, testifies that students sought fewer conferences than usual. The reasons for not holding conferences exhibit the usual ingenuity of students regarding such matters (*see* Table I).

TABLE I

SUMMARY OF THE ANSWERS TO SPECIFIC QUESTIONS REGARDING THE READING PERIOD

QUESTIONS	SUM	PERCENTAGE ANSWERING	
		"Yes"	"No"
(1)	(2)	(3)	(4)
I. General Questions—			
1. Was the reading period a success?	225	83	17
2. Do you approve of it in principle?	230	97	3
3. It is worth trying again?	227	96	4
II. Academic Aspects—			
4. Did you learn as much as in two weeks of usual work?	228	74	26
5. Did the reading period develop independence?	224	68	32
6. Was there too much work for two weeks?	221	38	62
III. Motivation—			
7. Did you enjoy the reading period?	227	85	15
8. Enjoy the work assigned more than class work?	215	86	14
9. Did you hold conferences with instructors?	233	59	41
10. How often (total for all students)?	274	.....	.....
11. If you held no conferences, why not?	.....	.....	.....
(a) Conferences were unnecessary	61	.....	.....
(b) Understood the work	25	.....	.....
(c) Assignments were clear	20	.....	.....
(d) No time for conferences	5	.....	.....
(e) Instructors not available	5	.....	.....
(f) Conferences defeat purpose of R.P.	3	.....	.....
(g) Not invited to hold conferences	2	.....	.....
IV. Health Aspects of Reading Period—			
12. Were you more fatigued than usual?	229	68	32
13. Did you suffer unusual eyestrain?	222	59	41
14. Did you get as much exercise as usual?	230	62	38
V. Administrative Aspects of Reading Period—			
15. Were books readily available?	223	83	17
16. Were places to study crowded?	222	37	63
17. Was heating and ventilation of the library satisfactory?	210	61	39

Part II of the questionnaire consists of original comments for and against the reading period (*see* Table II). We list the advantages and

disadvantages in the order of frequency with which they were mentioned. The list of advantages clearly testifies to the success of the period: it had been the precise intention of the faculty to create a period where uninterrupted, interesting, and freely chosen work should be pursued under conditions during which initiative should develop as a natural by-product of effort.

TABLE II

ADVANTAGES AND DISADVANTAGES OF THE READING PERIOD

	Cases	Per Cent
Advantages of the Reading Period—		
1. Work without interruption	95	44
2. Work more interesting	78	35
3. More choice of subjects	78	35
4. More initiative in planning work	76	35
5. More initiative in study	61	28
6. Study was more comprehensive	46	21
7. Freedom from classes and routine	25	11
8. More intensive work possible	21	10
9. More informative	20	9
10. More outdoor exercise possible	14	6
11. Revealed what students could do alone	10	4.5
12. More conferences were possible	3	1.4
Disadvantages of the Reading Period—		
1. No review or rest before final examinations	113	51
2. Not enough choice of subjects	63	29
3. General strain and fatigue	59	27
4. Excess of reading and other work	55	25
5. Examination period too short for the number of examinations	46	21
6. Eyestrain due to constant reading	41	19
7. Library hot, crowded, confused, etc.	32	15
8. Not enough books	28	13
9. Too much work in some courses	26	12
10. Monotony—loss of variation due to classes	27	12
11. Classes and laboratory work continued in some courses	20	9
12. Less informative than regular work	12	5

We do not, of course, enumerate here all of the advantages or disadvantages mentioned.[5] Thus, one student found the reading period an excellent season of rest, after a strenuous Christmas vacation; and another found it an opportune time for writing papers long overdue. Such comments were too infrequent to be statistically significant. The first six items in the list of disadvantages ought to convince the critical reader that the reading period was not a rest period, except, as some students declared, for the faculty.

The faculty report, however, shows that freedom from class work was invested in research study (9), in developing courses (14), in administrative and other work (19).[6] A large majority of the replies received from the faculty—34 reports from a teaching staff of 39 members—were in favor of continuing the reading period for another year, although the changes suggested were numerous. Most of the faculty comments, favorable or otherwise, duplicate the opinions of students: only the points of emphasis are different. Thus the faculty (naturally!) regrets the student's loss of faculty guidance, especially in such courses as languages, where classroom drill is essential. Consequently, during the reading period, students acquire less in terms of content. The dull student especially suffers from the inability to work alone. It was for a similar reason that the reading period was not extended to Freshmen at Radcliffe and Harvard. Special interest, therefore, attaches to the attempt at Wells to introduce Freshmen to independent work. We have seen that faculty

[5] For this reason the columns of percentages do not total one hundred.

[6] We are indebted for this part of the report to Jean Davis, professor of economics and sociology.

opinion on the subject quite agrees with the judgments of President Lowell and of President Comstock. I wish to submit some objective data that bears on this question.

First, the Wells questionnaire enables us to form an index of each individual student's attitude toward the reading period. When this is done by classes, we find that Freshmen and Sophomores favor the reading period more than do the Juniors and Seniors. Second, the judgment of Freshmen and Sophomores in this matter is not conclusive. If then we average the marks by classes, so that we may contrast the years 1928–29 and 1929–30, we find that the marks during the latter year—which might be designated the "reading-period year"—are slightly less than the average marks of 1928–29. However, the Freshmen are not the ones to lose, as Table III shows.

TABLE III

AVERAGE GRADES BY CLASSES FOR TWO YEARS

	1928–29	1929–30
Freshmen	73.19	73.64
Sophomores	76.47	73.82
Juniors	77.57	77.80
Seniors	81.13	79.60
Averages	77.09	76.22

THE writer computed a more refined average in which a comparison was made between the marks of standard courses which were given during both years and by the same professors. These courses (17) show that the average marks for the two years were equal (73.83 for 1928–29 and 73.44 for 1929–30). Of course, faculty standards shift, a circumstance which would make the figures valueless. But in that case, they cease to be evidence against the reading period.

Also, exponents of the reading period will maintain that independent work taxes the native intelligence of students more than does regular class work. If so, the marks for 1929–30 should show higher correlations with intelligence scores than occurs in the previous year. To test this assumption, eight correlations were prepared between intelligence scores of the American Council of Education Test and average marks for the year, consisting of four correlations, one for each class in 1928–29, and four equivalent correlations for 1929–30. The agreement between marks and intelligence is about the same for the two years, a result which confirms the previous findings as regards marks. The correlations were negligibly higher for 1928–29, during which there were no reading periods, on the average about .07.

These results, unhappily, are obscured by the fact that 1929–30 marked the introduction of innovations, such as the comprehensive examinations, other than the reading period. Certainly, there is no positive evidence that the student actually acquires less during a reading-period régime. We can only reiterate that the act of acquisition has as much value as the content acquired. "The object sought," writes President Lowell, "is self-education, the development of the faculties of each individual to the utmost by his own conscious effort."[7]

[7] Lowell, *loc. cit.*, p. 72.

Indeed, under inspection, the ideal of self-education will take on the more profound import of a philosophy of life. The apparent cleavage between thought and action has generally resisted attempts at synthesis. Despite Kant's eclectic efforts, he is obliged to suppose in the end a "pure" versus a "practical" reason, each one having a life of its own. The opposition between the practical man of action and the isolated thinker is banal in its familiarity. Now this ideal, now that one wins approbation.

John Dewey, who indeed has power to "read the scene," laments this artificial separation of knowledge and action.[8] The basic dichotomy lies, not between thought and physical action, for an original thought is a deed. A truer version runs as follows: Behavior is either originative or repetitive. Originative activity is conscious, deliberate, effortful, and has two forms, intellectual and motor. It is impossible to say which one of two lives—the humanitarian activity of St. Theresa or the metaphysical inquiries of St. Augustine, the vital deeds of the engineer Goethals or the reflections of Einstein—requires the more courage, vital energy, loyal application. Let education, therefore, be either intellectual or motor, so long as it is conscious, intentional, self-developmental, it will be genuine education.

The ideal of the modern college should be to reproduce the unescapable conditions of life. The college should differ from life in one unique feature, this the condition that life on the campus be so disposed that rapid mastery be facilitated. Pedagogical method ventured into a culde-sac when it was supposed that imparting knowledge was the best method of training students. For the debt incurred by imparting knowledge canceled all the credit gained in terms of the knowledge imparted. Thus another royal road to education is found wanting. Knowledge, like other forms of wealth, must be acquired, not borrowed. In the annals of modern psychology the "law of forgetting" is expressed in the form of a curve with a pathetic droop, descending sharply from full knowledge to amnesia! An educational program devoted to the task of producing informed minds is psychologically unsound. Courses of study supply an occasion for mental gymnastics. The athlete's purpose is not to move the weights, but to develop muscle. In modern experimental psychology, Terman's idea of an inherited and constant intelligence quotient is breaking down. There is an inherited nucleus of intelligence which experience may increase or decrease. "It is the function which creates the organ." This Lamarckian thesis well expresses the newer ideal. Prior to knowledge is the will to learn. To foster the will to learn is perhaps the chief goal of the period of independent work.

[8] Dewey, John. *The Quest for Certainty: A Study of the Relation of Knowledge and Action.* New York: Minton, Balch and Company, 1929. p. 252.

Libraries in Land-Grant Colleges

By FRANK K. WALTER

"An Effective Library Is Essential for the Instructional and Investigational Work in Higher Education"—Survey of Land Grant Colleges and Universities

SEVENTY or more pages of unfilled questionnaire lay on the desk of a land-grant university librarian in the summer of 1928. His first reaction was, "How long! O Lord! how long!" This depression, however, was temporary, for it soon became evident that this library section of the questionnaire of the *Land Grant College and University Survey* had been planned intelligently and that it promised findings and conclusions of value. The final report justifies this anticipation. The library section, which with a five-page report on the libraries of Negro land-grant colleges in Volume II covers 110 pages, is one of the most detailed parts of the report. No one person is given credit for the completed work, but the inclusion on the Survey staff of Mr. Charles H. Brown, librarian at Iowa State College, gives a clue to the chief collaborator.

No librarian can read this section without mingled feelings of encouragement at the progress made by the libraries of some of the institutions surveyed and of discouragement at the slow progress and lack of interest in adequate library service which the report makes evident. So definite are the data and so well fortified are the conclusions that it is difficult to see how the college and university executives most concerned can fail to be stimulated to attempt improvement if they read this part of the report.

The "General Conclusions"[1] are comprehensive and might well serve as a starting point for those executives and others whose interest in libraries is more or less perfunctory and who therefore might be inclined to pass by the detailed preceding chapters. One paragraph will be quoted in full because of its general and perennial truth:

> The five requirements for good library service have been stated in the introduction to this study, as follows: (1) adequate book collections; (2) suitable buildings and equipment; (3) satisfactory relationships of library to institutional administration and to faculty; (4) competent and significant library personnel; and (5) adequate financial support.[2]

This paragraph is prefaced by the remark: "This study has been based on the conception, stated repeatedly

[1] United States Office of Education. *Surveys of Land Grant Colleges and Universities.* Washington: Superintendent of Documents, 1930. Vol. I, pp. 712–14. (Bulletin, 1930, No. 9)

[2] *Ibid.*, p. 712.

by leading educators and research workers, that an effective library is essential for the instructional and investigational work of higher education. This conception is no longer considered open to question."

AN ADEQUATE book collection must contain enough books on every subject of the curriculum or field of investigation undertaken by the institution to permit every student and faculty member to make reasonable progress in the subject studied or the research undertaken. To continue progress, a steady supply of books and periodicals dealing with present-day interpretations and applications of knowledge must be furnished. The adequacy of such a supply is increased, as the Survey truly states, by the number of volumes added yearly, and the holdings of fundamental books and serial sets.

On both these counts most of the land-grant institutions fall short. The Survey describes as "pitiful" the book collections of more than half of these institutions. In four cases less than 525 volumes are added yearly. In 13 there is no copy of the *New Oxford Dictionary;* 15 have no copy of the *Union List of Serials.* But 20 of the 52 land-grant institutions surveyed have periodical holdings considered of sufficient importance to include in that list. In 13, less than 250 periodicals are received on regular subscription. The extreme one hundred–per cent American perhaps might be pleased to learn that 11 of the 52 each subscribe for less than 10 periodicals in foreign languages. No one else with the slightest conception of the internationalism of knowledge can find such a situation other than deplorable. Scarcely less so is the fact that 15 have less than 5 complete sets of 21 selected fundamental scientific periodicals and 26 have less than half of these sets.

On the other side are found 5 of these institutions with all of the 21 selected sets and three others with 19 sets each. Ten of them added from 10,000 to 27,000 volumes annually in 1928. It must be granted that these are among the largest institutions and that most of them are general universities as well. It does not follow that limited library facilities are due chiefly to small student enrollment or limited curriculums. In many of those with woefully inadequate book collections, the enrollment is comparatively small, but in few cases do the catalogues show any attempt appreciably to limit the curriculum because of limited library facilities. In all but 5 instances out of 52, they report students in graduate courses, even when an inadequate supply of current research material is evident.

A teacher of agriculture in the Iowa State Agricultural College in 1869, Mr. Isaac P. Roberts, is quoted in the Survey as follows:

> I began to tell the students what I knew about farming. It did not take me long to run short of material and then I began to consult the library. I might as well have looked for cranberries on the Rocky Mountains as for material for teaching agriculture in that library. Thus, fortunately, I was driven to take the class to the field and farm, there to study plants, animals and tillage at first hand.[3]

[3] United States Office of Education, *op. cit.*, p. 21.

Were Mr. Roberts able and willing to return to some present-day land-grant college libraries he might not find conditions entirely different from those of his early days.

Modern science cannot advance by the laboratory alone. It must progress by the recorded work of many widely separated workers in many fields. The laboratory without a good working library is wasteful or futile or both. The college or university which emphasizes practical application of knowledge and overlooks either of these assets is unfair to its trust.

Adequate book collections require adequate funds. Quite as much they require the aid of the specialists on the faculty and an administrative staff capable of obtaining the books quickly and economically and preparing them for easy use through catalogues, classification, and shelf arrangement. No librarian can satisfactorily take the place of the specialist in evaluating material for purchase. Few of the faculty specialists have interests wide enough to enable them to keep the balance between the different parts of a collection as a competent librarian should do. For these reasons, the Survey concludes that the library committee of the faculty should be advisory in matters relating to the institution as a whole rather than executive, and that the librarian be given jurisdiction over and held responsible for business and internal administrative policies and practices.

An adequate supply of books implies suitable conditions of use. This in turn requires suitable buildings and equipment. A sufficient number of available seats in reading- and main study-rooms is imperative. Increased use of libraries suggests seats for from 20 per cent to 33 per cent of the anticipated enrollment. Special study facilities for faculty and advanced students; adequate stack capacity for at least fifteen years on a basis of not more than eight books per running foot of shelving; grouping of work-rooms and reading-rooms to save unnecessary time and labor and to aid supervision and possibility of enlargement when needed; adequate equipment and well-planned light and ventilation are among the suggested requirements of satisfactory new library buildings.

BUILDINGS and equipment exist for the purpose of promoting library use. The tests of satisfactory use suggested by the Survey are proportion of students using the library daily; loans for home reading; books for assigned reading; number of interlibrary loans; and seating capacity and utilization of seats.

These tests are valid, but it should not be overlooked that the classroom, the seminar, and faculty conferences with students are the chief factors in the amount and quality of library use. The librarian is the quartermaster, not the drill sergeant or the line officer. Even the apparently simple matter of assigned reading is really complex. A study, still unpublished, of the use of the library and the reading habits of a group of 317 students at the University of Minnesota has just been made by Alvin C. Eurich. This shows that students' reading is seasonal both according to time of day and the relative date in the academic

term. The two-hour period for use of reserve books is often longer than is necessary or, at least, longer than is used by the students, as is indicated by the earlier return of many of the books.

Librarians have often been reproved for not making such studies. The Survey says: "Librarians should make additional studies, statistically and otherwise, of the use of their libraries, and especially of failures of students and faculty to obtain adequate service." Dean George A. Works, of the University of Chicago, sometime dean of its Graduate Library School, said in his *Study of College and University Libraries:* "Some of the librarians have not had the training that would fit them to collect objective evidence and use it as the basis of solving their problems." Mr. C. C. Williamson, himself a librarian and the director of a "school of library service," asserts, "The average librarian is an empiricist; not a scientist . . . Quantitative studies are its [empirical tendency's] greatest enemy, but probably not one librarian in a hundred has even had training in quantitative methods."[4]

THE study of Mr. Eurich though carefully and economically conducted took so much more time and money than was anticipated that it was not carried to the stage of completion intended. Since the land-grant libraries are so often underfinanced, in the obvious matters of books, equipment, and staff, it is not surprising that similar studies, which must often be lengthy and expensive to be conclusive, are seldom made.

It would be difficult to find other college units which have surveyed their work consistently, adequately, or frequently without special grants of money, easing of classroom schedules to permit time for the study or the utilization of graduate students who will take on any job which will eventually lead to a thesis and a degree. Similar grants, concessions, and aids to librarians, for similar purposes, are so rare as to be negligible. These factors, as well as the alleged lack of capacity, should in justice be considered. Until they are given a fair chance to demonstrate their ability to conduct research, it is as unscientific as it is unfair to assume their general lack of it. It seems more nearly the fact to consider such studies a suitable field for co-operative study between the two groups responsible for library use: on the one hand, the faculty whose duty is to guide and stimulate habits of study, including the reading habit; on the other, the librarian and his staff, whose duty is to provide every facility possible to encourage the formation and development of the reading habit in particular. Each group has a contribution necessary to a valid conclusion.

Pending further research in this direction, several other suggestions of the Survey deserve attention, though none of them is new. More attention to individual users is important. Assistance in the use of the complicated card catalogues should be available. Few question in principle the desirability of instruction in the use of books and the library. There may be

[4] "Place of Research in Library Service," *Library Quarterly*, I (January, 1931), p. 8.

some who question the amount of such instruction necessary. This will probably best be determined by local conditions arising from the number of students registered and the facilities available for problem use. Librarians would generally agree that whenever such instruction is given, "direction and supervision should be given by professional members of the library staff." Even friendly faculty members frequently fail to see library use in true detail. Some years ago in a land-grant institution, two hours on the use of the library were included in a freshman orientation course. A scholarly instructor of one of the sections of the class devoted one hour to a talk on the historic importance of the discovery of printing, illustrating his talk by showing several of the few early printed books in the possession of the library. The other hour was used in a philosophic discussion of the pleasures and profits of reading.

The proposal that graduate students also be provided instruction in bibliographic method is met in part by the mention of several institutions which conduct such courses in several special fields. There is need of more such instruction. The form and content of the bibliographies loosely attached to many graduate theses, as well as the experience of most librarians in institutions where graduate courses are offered, attest the need.

There is pathos as well as pertinence and restraint in the statement, "Some faculty members also show a lack of knowledge of bibliographic sources. An assistant professor in home economics hunted in vain for a bulletin of the 'United States Dental Association' only to learn eventually that she had misinterpreted the abbreviation, 'U.S.D.A.' " Questions asked at the University of Minnesota disclosed similar misapprehension in several quarters. A young scientist at the same institution, instead of making personal search, was prone to keep a page busy hunting and bringing him material from the bookstacks. One of the citations, on a separate slip not in a list, the page was unable to find. It read, "*Ibid.*, p. 256."

LIBRARIES should be open as frequently as is practicable within budget limits and the use made of the opportunity. The suggested fourteen hours daily seems from experience to be generally best. "Skilled assistance to students, faculty, and research workers in search for informational material" is forecast by the "readers' advisers" of many large public libraries and the reference departments of both public and college libraries. It is both probable and desirable that the present tendency toward individualized courses will awaken a desire on the part of faculty and students for more and better assistance. Such assistance is a commonplace in the laboratory. It is no less important in the library.

The librarian and his staff are both concerned in the question of "competent and sufficient library personnel." In the librarian, the department heads, and their major assistants, at least, competence implies wide interests, broad reading, sympathy with scholarly ideals, and special professional training and experience. They

should measure up to standards required of their faculty colleagues and be subject to the same necessity for continued study.

Two lines of library work must be recognized: the professional, involving special knowledge and technical skill; the clerical, which chiefly requires accuracy and skill in rather routine lines. The necessity of a clerical staff does not mean that the staff should be largely clerical. It is illogical to expect a college community to be served adequately by a library staff with inferior educational backgrounds.

IN EDUCATION, as in other matters, an institution usually gets what it pays for. If the members of a library staff are to be in any sense the peers of advanced students and faculty, it seems reasonable to assume that they should receive substantially equivalent wages. What are the facts?

> Out of 48 (land-grant) institutions, only 2 . . . pay their librarians the typical salary of a dean. The typical salary . . . is the salary of an associate professor . . . Four institutions are paying their librarians a typical salary of $1,775 . . . One institution allows $2,200 for a librarian who serves also as language teacher. Four . . . pay their librarians (a) $1,500 (students 626); (b) $1,700 (students 960); (c) $1,980 (students 1,219); (d) $1,850 (students 1,610). These colleges are among those which . . . were shown to have the lowest use per student.[5]

A recent table of typical college and university library salaries shows that land-grant institutions very generally pay lower salaries than other colleges and universities in the same sections. Where there is both a separate state university and a land-grant college, or a state university including a land-grant college, in every instance noted the librarian of the separate state university receives considerably more salary than his land-grant colleague in the same state or neighboring states.[6] The same holds true of the rest of the staff. "Thirteen institutions are paying heads of some departments less than $1,500 . . . It is impossible to obtain at salaries ranging less than $1,500 satisfactory professional library assistants, but many heads of library departments are paid no more."[7] Bargains in expert library service are seldom profitable in the long run.

The lack of suitable courses in library schools is noted. More specialists are needed, but until there is some chance of employing them, it seems of dubious value to train them as reserves. A specialist out of a job is no more solvent or contented than a jobless person with general training. All this leads to the final recommendation—"adequate financial support." This is not a popular subject for discussion just now. The prospects for a satisfactory answer to the questions it raises are not bright at present.

Nevertheless, the efficiency of library service with all its educational implications depends on the financial support it receives. The Survey shows that 10 out of 51 institutions spent in 1928 less than $10 per student for library purposes. "Eight out of 45 spend on their libraries less

[5] United States Office of Education, *op. cit.*, p. 685.

[6] *American Library Association Bulletin*, XXV (February, 1931), pp. 78–79.

[7] United States Office of Education, *op. cit.*, p. 688.

than 1 per cent of their total expenditures." Only 4 spent as much as 4 per cent and only 2 reached or exceeded 5 per cent.

Much growth in library expenditures in recent years is shown, but in too many instances a long period of financial inaction had to be overcome. The matter is fairly stated as follows:

> A study of the growth of library expenditures as compared with services rendered and with the growth of the institutions indicates: (a) That a few (four or five of those reporting) of the land-grant colleges have received fairly adequate support during the past 20 years; (b) that a much larger number (the emerging libraries) have lately increased their expenditures rapidly and have started a period of development; and (c) that there are still many libraries (the submerged class) whose expenditures have not increased sufficiently to enable them to function at all adequately.[8]

There will be much temptation, mixed with necessity, to curtail institutional expenditures in the immediate future. There has been too little interest, in times of prosperity, to give the college library adequate support. Lessening that interest, in times of depression, would be unfortunate. Lack of funds may make financial dieting a library necessity. It will not be the library alone, but the college and the university as a whole which will suffer if that dieting is, through official lack of interest, carried on so far as to become fasting or starvation.

Student Ratings of Teachers

By ALFRED R. ROOT

A Measurement of Collegiate Instruction through the Student Teacher-Critique

THIS paper presents a student teacher-critique which aims to measure the efficiency of instruction at the college level. In the lower levels of education standardized tests and scales have been in use for a number of years to assay such efficiency. In some school subjects where standardized tests are not available, objective tests have been devised and have been used for this purpose.

At the college level, especially, where divergencies in background and experience, outside demands, temperament, and other traits of the student are more accentuated, and where the curriculum is in a greater state of flux than in the lower levels of education, it is precarious to measure efficiency of instruction in terms of objective tests alone. The attitudes of students

[8] *Op. cit.*, p. 704.

on certain crucial points of instruction furnish an excellent supplement or alternative. The student is the focus of interest in educational procedure, and it is presumed that attitudes play a significant part in the student's receptivity in the learning process.

Several attempts have been made to use student-teacher rating blanks to get a hazy statement of efficiency of instruction. These blanks have usually comprised a series of abstractions such as scholarship, interest, and personality, with instructions to rate the instructor on a scale of from five to ten. The difficulties with such blanks lie in the ambiguity and individual differences of interpretation of meaning of the words and lack of some more or less stable standard with which to compare the teacher to be rated. The biggest objection is that the instructor who seriously accepts the students' ratings finds difficulty in interpreting low ratings in order that he may seek to ameliorate the flaws in his teaching procedure and individuality which lead to adverse criticism.

A student teacher-critique has been designed and experimented upon with the just-mentioned considerations in mind. Some fifty specific questions, answerable by "yes" or "no," which seemed to cover salient desirable traits of college teachers as indicated by a check list submitted to students and the education faculty of another institution, were formulated. Such questions as the following were included:

Does the instructor create a cheerful, buoyant atmosphere in class?

Does he have annoying peculiarities of speech?

Is his class preparation thorough?

Do the examinations constitute a good inventory or good sampling of the educational experience of students?

It was assumed that specific questions answerable by "yes" or "no" would probably yield a higher reliability than abstractions in a rating scale. Specific statements prevented ambiguity. The items in the critique should not only be well within the experience and judgment of the student, but should include items that the student is likely to judge anyway. The "yes" or "no" answer was thought to be preferable to a rating device, since it minimizes considerations of relative merit among instructors whom the students know. On the other hand, the utility of the instrument from the point of view of the instructor was thought to be the greater according as the items in the blank were specific, in order that specific points of weakness could be detected by him and remedial measures planned.

THE original list of some fifty questions was submitted to two hundred students of a given teacher with the following instructions:

You are asked to make judgments of your instructor according to the questions asked in the list below. If, on the whole, he evidences the characteristic embodied in the question, underscore "YES" at the end of the line; if, on the whole, he does not evince the characteristic embodied in the question, underscore "NO." The instructor does not care to know who you are, but he asks that you be as honest as you can in making your judgments. Do not write your name on the blank, but place some symbol upon it which you are asked to record in your notebook for future refer-

ence. On the back of the sheet, indicate what your grade in this course is at the present time.

After the blanks were filled out, they were turned over to an assistant who did all the scoring. Four weeks later the same list was again submitted to the same students without having had any discussion of the blank and before the instructor had seen the previous set of papers. A second administration of the blank correlated .93 with the first administration, with a range of agreement among the various items of from .79 to 1.0 and a standard deviation of .06.

It was thought that if such a blank were to be useful to the instructor, the reliability for each item should be very high since the instructor is not so much interested in a single numerical statement of efficiency as in the specific points of weakness to which he may give attention. All items with a reliability below .85 were omitted in the second form of the blank which was then arranged, with items of highest reliability at the beginning so as to facilitate interpretation later when used as a tool by the instructor. The blank in its final and present form[2] is as follows:

1. Does the instructor treat you in a democratic spirit?
2. Does his general scholarship seem to be of a high order?
3. Is his scholarship in his special field adequate for the job?
4. Does he know what he is talking about?
5. Are the statements that he makes and the data that he gives you in his special field accurate and reliable?
6. Does he seem fair and unbiased in his presentation of debatable hypotheses and questionable data and conclusions?
7. Is he master of class situations?
8. Does he recognize and admit his lack of information on various points of weakness rather than assume a false authoritative and autocratic attitude?
9. Does he deal honorably with you?
10. Does he give you a wholesome opportunity to learn?
11. Does he invite and welcome critical questions upon the subject-matter of the course?
12. Are his examinations sufficiently comprehensive so as to constitute a good inventory or good sampling of your educational experience in this course?
13. Is he a mere rubber stamp of the textbook?
14. Do you leave the class feeling that the hour has been spent profitably?
15. Is he willing to make inquiry concerning points of the subject-matter under discussion upon which his preparation is not adequate?
16. Does he evidence definite prejudices toward you which make him partial in the conduct of the course?
17. Does he create a cheerful, buoyant atmosphere in class?
18. Does he adequately prepare you, or give you adequate opportunities for preparation of examinations?
19. Is his class preparation thorough?
20. Does he play "aboveboard" in devising examinations?
21. Does he play "aboveboard" in giving examinations?
22. Does he play "aboveboard" in grading examinations?
23. Is he sympathetic with and appreciative of your interests and points of view?
24. Do you consider him as a "constructive" influence in your life?
25. Does he stimulate an interest in the subject-matter of the course?
26. Does he annoyingly wander from the point in class?
27. Does he wrongly hurt your feelings in his classroom conduct?
28. Does he understand your needs in his field?
29. Does he show an annoying degree of nervousness and tension in class?

[2] To save space the line bearing the alternatives "yes" and "no" following each item in the test has been omitted.

30. Does he bluff in class by evasive answers, shunting of students' questions, hard-boiled attitudes, etc.?
31. Does he make the examinations unwarranted ordeals for you?
32. Does he have distractive or annoying peculiarities of dress?
33. Does he tolerate well-meaning but poorly worded questions in class?
34. Does he understand the relationship of parts of the course and synthesize the whole into a meaningful progression?
35. Does he have annoying peculiarities of speech?
36. Does he have annoying peculiarities of action?
37. Does he stimulate and maintain your interest in the subject-matter of the course?
38. Does he hold your interest during the class hour?
39. Are the examinations reasonable and fair?
40. Is the vocabulary that he uses in class beyond your level of comprehension?
41. Is the instructor accessible and approachable outside of the class hour so that you may talk over difficulties or problems with him?
42. Does the instructor create in you a sense of gross inferiority in his classroom treatment of you?

This blank has been given to two hundred students also, and a retest made four weeks later under conditions similar to those just reported. The gross agreement between the two applications of this blank was .95. The range in agreement among the 42 items of the blank was .86 to 1.0, with a standard deviation of .048. Question 40 had a reliability of .88, and questions 41 and 42 had a reliability of .86.

AN ATTEMPT also was made to test the validity of the judgments of students in the classroom situation; that is, the extent to which the judgments in class agree with judgments privately made. Five students assisted in giving the same blank to each of one hundred students of another instructor who had previously submitted the critique to his class. The blank was given to the students in their rooms, and the co-operating students were instructed to guard against group discussion of the instructor among those making the critique. The student was asked to mark the form by the symbol which he had used on the previous blank so that the two sets could be compared with each other in pairs. Instructions were given them by the student monitors as follows: "I want to know what students really think of ———. Will you fill this out for me now?" A check of all items on the blank revealed an agreement of .95, with a range of agreement among the 42 items of from .84 to 1.0, items 41 and 42 having the lowest agreement of .84. The classroom judgments, therefore, seem to be fairly valid.

TABLE I

PERCENTAGES OF ADVERSE CRITICISM OF THE INSTRUCTOR

	Grade A	Grade B	Grade C	Grade D	Grade F
(1)	(2)	(3)	(4)	(5)	(6)
Item 18 . . .	0	0	.09	.14	.25
Item 20 . . .	0	0	.14	.25	.28
Item 21 . . .	0	0	.14	.14	.37
Item 22 . . .	0	0	.14	.25	.37
Item 39 . . .	0	0	.14	.20	.25

In interpreting adverse criticism of the instructor on the basis of this critique, a definite relationship has been shown to exist between lack of school success and criticisms of examinations. Table I shows the percentages of adverse criticism of the

instructor from the two hundred students in each of five grade groups.

The number of cases in each grade-group was quite variable. There were 12 students in A, 38 in B, 85 in C, 44 in D, and 21 in F. In the department in which the critiques by students were made, objective examinations were generally used, and an explanation of the principles underlying them and the method of scoring given. For the blank as a whole, there were no differences in extent of adverse criticism among the five grade-groups.

It seems possible for the instructor to get valuable information from these students' opinions or attitudes. For example, among the items upon which adverse criticism was given for this same instructor, the data given in Table II were found. In the case of this teacher, there was no evidence of strong personal antagonism since there was no relationship among the grade-groups in criticism of more personal questions relating to his character and personality. It is quite evident that this instructor needs careful retraining of muscular control since a good percentage of all groups indicated that he had annoying peculiarities of action and an annoying degree of nervousness and tension. It is evident, also, that there is a small though increasingly large group of students from the higher to lower grade-levels who are more and more dependent upon the class discussion for the acquisition of their educational experience in this given course, especially in the cases of the D and F groups. If it were practicable to have a small section under supervised study, this problem might be minimized. Again, it is evident that the interest appeal is directed more largely to the poorer students to the exclusion of the good students, and that attention needs to be given to the upper-level students. The instructor appears to be somewhat intolerant of badly worded questions and too meticulous on precision in the expressions and questions made by students. It is obvious that the vocabulary which he uses is not sufficiently toned down for many of the students at the lower levels; but for the upper levels it is comprehensible and may be sufficiently above that of the students so as to set a standard for emulation by the student.

TABLE II

ITEMS OF ADVERSE CRITICISM

	Grade A	Grade B	Grade C	Grade D	Grade F
(1)	(2)	(3)	(4)	(5)	(6)
Item 16 . . .	.50	0	.20	.14	.25
Item 25 . . .	.25	.20	.18	.14	.06
Item 27 . . .	0	0	.14	.14	.19
Item 29 . . .	.50	.60	.28	.28	.25
Item 33 . . .	.50	.20	.28	.14	.31
Item 36 . . .	.50	.40	.28	.30	.44
Item 40 . . .	0	0	.14	.20	.25

These student teacher-critiques may not only point out to the instructor points of weakness in his teaching, but also if it so desires, the administration may use them for securing single numerical statements of instructional strength of the faculty from a student point of view. Subtracting the average adverse criticism of a given class on all questions from 100 per cent gives a single measure of the general strength of the teacher's technique.

Methods in Science Teaching

By ELLIOT R. DOWNING

Summary of Investigations of the Demonstration Method versus the Laboratory Method

IF ASKED to state in what particular the teaching of science differs from the teaching of other subjects, the average educator would probably name the laboratory method as a distinctive characteristic. Yet the laboratory method is a relatively recent innovation in the teaching of science. Amos Eaton and his fellow teachers, like Griscom and Holbrook, were teaching by the laboratory method in the third decade of the nineteenth century: Eaton in the Academy at Albany, Griscom in a private boys' school in New York City, and Holbrook in an Agricultural Seminary at Derby, New Hampshire. Eaton was the pupil of Benjamin Silliman, of Yale University, who had studied under Thomas Thomson, of Edinburgh, Scotland, the first teacher of chemistry who, so far as I know, opened his laboratory to students. Apparently, however, this effort of Eaton and his fellow teachers to establish the laboratory method of instruction was fruitless.

The real introduction of the laboratory method into the secondary schools came some seventy years later. It was introduced into this country first in research work in the universities where it was copied from the European institutions; later it was introduced into college instruction; and finally into the secondary schools. The first chemical laboratory to be opened for student instruction in this country was that of the University of Pennsylvania in 1835. Massachusetts Institute of Technology gave the first laboratory work in physics in 1868. Agassiz' laboratory—an old boathouse—was the first for college biology. In all these students worked without guides or supervision.

As late as 1872 there were only six colleges in this country teaching chemistry by the laboratory method. In 1880, in response to a questionnaire sent out by the Bureau of Education, it was found that physics was being taught in slightly over two hundred out of more than six hundred high schools that existed. Only four of these were teaching it by the laboratory method; fifty, by the demonstration method; and the remainder were using the book method pure and simple. It was in the decade between 1880 and 1890 that laboratory work began to be introduced into the secondary school. In 1886, Harvard University set a list of experiments in physics that must be done by students presenting that subject to fulfil

entrance requirements and in the following year a similar standard was established in chemistry.

THE laboratory method of instruction was adopted by imitation, and it is only recently that scientific studies have been attempted to evaluate its value as a teaching device as compared with the earlier demonstration and book methods. A number of investigations have now been made on the relative merits of the laboratory and demonstration methods. There are also a number of investigations on the relative merits of other methods like the book method, the developmental method, and the like. Only those that deal with the work done by the individual student in the laboratory and that accomplished through the teacher's demonstration will be here considered. There follows a list of most of these investigations.[1]

1. 1918 Wiley, W. H. "An Experimental Study of Methods of Teaching High School Chemistry," *Journal of Educational Psychology*, IX, pp. 181–98.
2. 1920 Cunningham, H. A. *Individual Laboratory Work vs. Lecture Demonstration*, University of Illinois Bulletin, XVII, pp. 104–17.
3. 1920 Phillips, Thomas D. "A Study of Notebook and Laboratory Work as an Effective Aid in Science Teaching," *School Review*, XXVIII, pp. 451–53.
4. 1923 Cooprider, J. L. "Oral versus Written Instruction and Demonstration versus Individual Work in High School Science," *School Science and Mathematics*, XXII, pp. 838–45.
5. 1923 Kiebler, E. W., and Woody, Clifford. "The Individual Laboratory versus the Demonstration Method of Teaching Physics," *Journal of Educational Research*, VII, pp. 50–58.
6. 1923 Cooprider, J. L. "Laboratory Methods in High School Science," *School Science and Mathematics*, XXIII, pp. 526–30.
7. 1923 Anibel, Fred G. First study, Master's thesis on file in the library, The University of Chicago. Reported with the results of the second study. *See* No. 9.
8. 1924 Cunningham, H. A. "Laboratory Methods in Natural Science Teaching," I and II, *School Science and Mathematics*, XXIV, pp. 709–15, 848–57.
9. 1924 Anibel, Fred G. "Comparative Effectiveness of the Lecture-Demonstration and Individual Laboratory Method," *Journal of Educational Research*, XV, pp. 371–79.
10. 1925 Carpenter, W. W. *Certain Phases of the Administration of High School Chemistry*. (Teachers College, Columbia University, Contributions to Education, No. 191)
11. 1926 Walter, C. H. "Can the Demonstration Method Be Made as Effective as the Laboratory Method on the Set Up and Happenings in the Experiment" (An unpublished Master's thesis on file in the library, The University of Chicago). *See also* second study, "The Individual Laboratory Method of Teaching Physics When No Printed Directions Are Used," *School Science and Mathematics*, XXX (April, 1930), pp. 429–32.
12. 1927 Knox, W. W. "The Demonstration Method versus the Laboratory Method of Teaching High School Chemistry," *School Review*, XXXV, pp. 376–86.
13. 1927 Nash, H. B., and Phillips, M. J. W. "A Study of the Relative Value of Three Methods of Teaching High School Chemistry," *Journal of Educational Research*, XV, pp. 371–79.

[1] Nos. 2, 4, 6, 7, 11 are Master's theses on file in the library, The School of Education, The University of Chicago. The articles listed are abstracts.

14. 1927 Pugh, David B. "A Comparison of the Lecture-Demonstration and Individual Laboratory Methods of Performing Chemistry Experiments, as Measured by Non-Standardized Objective Tests," *High School Teacher*, III, pp. 384–87.

15. 1928 Horton, R. F. *Outcomes of Individual Laboratory Work in Chemistry*. (Teachers College, Columbia University, Contributions to Education, No. 303)

16. 1929 Hurd, A. W. *Problems of Science Teaching at the College Level*. (University of Minnesota Press)

The usual method of procedure in these investigations summarized in Table I has been to divide the pupils into two sections, each pupil in one section paired with a mate in the other on the basis of their intelligence quotients, sometimes combined with previous school marks. One section is then taught by the individual laboratory method; the other by the demonstration method. Care is taken to avoid any other variables, thus the language used in the demonstration is identical with that in the laboratory directions. Questions are not allowed nor is discussion permitted for fear that these elements cannot be kept the same in the two sections. In a few cases, the method of procedure has been that customarily used in class work with demonstration or in laboratory work with freedom of discussion. Carpenter and Horton used the rotation method largely; that is, students were taught one exercise by one method; another, by a second method; another, by a third method if more than two were being investigated. The scores for the same student were then compared by the several methods.

Here is the evidence found in some seventeen studies made in 36 schools by 46 different teachers. It is evident that as far as the immediate tests go there is a large preponderance of evidence in favor of the demonstration method. Only three of the investigations, those of Wiley, of Horton, and of Hurd, each show a slight superiority with the laboratory method.

THERE is, on the other hand, a fairly constant superiority shown for laboratory method in the delayed tests. When, however, the tests are given in terms of four major headings—What was the purpose of the experiment? How is the apparatus set up? What happened in the experiment? and, What does the experiment prove?—it is seen that this superiority is due to the fact that students better understand the set-up of the experiment and what happens in it when they have done the work by the laboratory method; that they are clearer on the purpose of the experiment and on what the experiment proves when the work has been done by the demonstration method. If time is taken to drill pupils on the set-up of the experiment and what happens in it, as was done by Walters, the demonstration method shows a superiority even on the delayed tests. Since the purpose of the experiment and what the experiment proves are the important items, and since these are better taught by the demonstration method as tested by the delayed tests, the demonstration method is shown to be slightly superior.

Cooprider finds that only about one-fourth of the class in the imme-

diate tests see what the experiment proves; in the delayed tests this is reduced to one-twelfth of the class. Walters' results are very similar. Even in the delayed test, after considerable drill, less than one-fifth of the class know what the experiment proves. It is evident that experimental work, whether done by the laboratory method or by the demonstration method, under good teachers is relatively futile. An experiment is a question asked of nature, and, if four-fifths of the pupils fail to receive any answer, what is the use of asking the question? Experimental work in science may be interesting busy work, but its value as a means of teaching science is evidently not great. Teachers apparently take it for granted that the experiment proves something to the pupils because it is meaningful to the teacher. That evidently is an error, and much more drill than is customary now must be given to make the experimental work significant.

While on some of the main items of these investigations the evidence is fairly clear, there is a great deal of difference of opinion on other points. Is either method preferable in dealing with difficult experiments as compared with easy ones? Do dull pupils profit by one method rather than another? Is either method preferable in imparting skill in the attack

TABLE I

A Summary of the Findings in the Fifteen Studies

	Experiments by Members				Immediate Tests		Delayed Tests		Time Interval between Exercise and Delayed Test
	Number of Exercises	Number of Sections	Pupils per Section	Total Pupils[d]	Demonstration	Laboratory	Demonstration	Laboratory	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	3	3	8	24	56.30	56.60	38.30	39.70	4 weeks
2	13	2	12	24	64.33	61.15	46.10	49.50	1 month
3	.....	.....	.....	.....	137[a]	133	.....	.....	.....
4	24	3	14	42	72.55	70.80	.....	.....	.....
5	14	2	.....	.....	60.53	59.58	58.51	59.30	2 weeks
6	12	4	17	68	63.76	62.70	34.74	35.09	1 month
7	25	2	23	46	60.71	58.45	.....	.....	.....
8	12	2	10	20	60.30	55.20	30.50	34.60	3 months
9	10	2	17	34	71.11	68.35	57.5	60.85	5 months
10	10	34	.....	856	.98[b]	.99	.....	.....	.....
11	24	4	20	80	47.	42.8	54.7	47.8	.....
12	10	4	21	85	.077[b]	—.648	.375	—.461	.....
13	.....	2	18 & 22	40	34.1[c]	35.6	.....	.....	.....
14	.....	2	42 & 28	70	10% better	.....	18.3% better	.....	2 weeks
15	.....	10	Dem 85 Lab. 379		40.95	43.60	.....	.....	.....

[a] Number of pupils whose answers were complete and accurate.
[b] These are sigma scores.
[c] These scores are in terms of percentage of gain made from the initial test.
[d] Except in the case of experiment 10, which was carried on in 23 schools, the experiments included but one school.

on new problems? By what method are manipulatory skills best developed, at least in the early stages? These are still unsettled questions, and evidently additional investigations must follow to settle them.

One must not generalize too extensively even on those results in which there is apparent unanimity of opinion. It does seem safe to conclude that under the present conditions of teaching science in the secondary schools the demonstration method is as effective as the laboratory method in getting over to pupils the desired information and saves time and a great deal of money. It seems probable that the demonstration method is as effective as the individual laboratory method, even at college level, when the purpose of the science course is cultural rather than vocational. At least here is an opportunity, and a challenge to the college-science teacher "to prove by his own scientific method the results of his job as an educator."

[Vol. II, No. 6]

Gains of the Highest and Lowest

By J. A. CEDERSTROM

Relation of Amount Learned in Zoölogy to the Students' Initial Ability

THE notion is rather commonly held that among college students those who know most about a subject tend to gain most from the study of it. Ideas based on observations only are not always accurate, however, nor are ideas regarding learning at the college level easy to verify. As suggested in a monograph now in the press by Mr. Van Wagonen, of the Department of Educational Psychology, University of Minnesota, the measurement of gains in ranges of information requires an instrument possessing the same qualities that characterize instruments for measuring physical changes.

Since the ordinary objective test with its variable unit of measurement fails to yield data that permit comparisons at different levels of attainment, the author in co-operation with Mr. Van Wagonen set about the task of constructing educational scales of the "C-score" type. A C-score is a score which shows the difficulty of a task which a student attempted, and in which he accomplished approximately one-half of the task.

Two scales of this sort were constructed and are known as the Zoölogy Range of Information, Scales A and B. Each consists of forty topics or questions on zoölogical information arranged in order of difficulty, one step or unit apart as determined by the accepted technique of constructing a C-score scale. The two scales thus constructed were administered to two five-hour and to two four-hour classes

in zoölogy about six weeks after the beginning of the course, at the middle of the course, and again at the end.[1] These scaled tests were also administered to a fifth class, in which more than one hundred students taking zoölogy as a five-hour course during two-thirds of a year were enrolled. The tests were given at the beginning, the middle, and the end of the course.

The gains in range of information determined by the scores made on these scales have been compared for the ten per cent of the students making the highest scores in each class and the ten per cent making the lowest scores. In Table I are listed the mean initial scores and the mean gains made on Scale A by the ten per cent of the students in each class making the lowest scores on that scale. Table II contains the mean initial scores and mean gains made on Scale B by the ten per cent making the lowest scores on Scale B.

In Tables III and IV we have the corresponding data for the ten per cent of the students making the highest scores in these scales.

In Tables III and IV the initial scores are higher than in Tables I and II. The differences between the mean scores for the lowest and the highest ten per cent of students closely

TABLE I

MEAN GAINS MADE ON SCALE A FOR THE TEN PER CENT MAKING THE LOWEST SCORES ON SCALE A

Group	Mean Score First Test	Mean Gain during Course
(1)	(2)	(3)
Academic 1 W	67	27
Pre-Medics.....	72	23
Pre-Dents.....	73	25
Section I.....	75	19
Section II.....	76	22

TABLE II

MEAN GAINS MADE ON SCALE B BY THE TEN PER CENT MAKING THE LOWEST SCORES ON SCALE B

Group	Mean Score First Test	Mean Gain during Course
(1)	(2)	(3)
Academic 1 W	67	33
Pre-Medics.....	75	23
Pre-Dents.....	74	22
Section I.....	76	19
Section II.....	80	20

TABLE III

MEAN GAINS MADE ON SCALE A FOR THE TEN PER CENT MAKING THE HIGHEST SCORES ON SCALE A

Group	Mean Score First Test	Mean Gain during Course
(1)	(2)	(3)
Academic 1 W	86	13
Pre-Medics.....	93	15
Pre-Dents.....	91	15
Section I.....	93	17
Section II.....	96	12

TABLE IV

MEAN GAINS ON SCALE B FOR THE TEN PER CENT MAKING THE HIGHEST SCORES ON SCALE B

Group	Mean Score First Test	Mean Gain during Course
(1)	(2)	(3)
Academic 1 W	84	18
Pre-Medics.....	92	20
Pre-Dents.....	91	15
Section I.....	95	17
Section II.....	99	14

[1] The measurement from which the results in this study were made with the co-operation and assistance of the several members of the Department of Zoölogy at the University of Minnesota.

approximates the gain made during the entire course. Some of the gains in Table I are considerably higher than those in Table II. There is also some variation between the gains in Tables III and IV. These results, however, are open to the criticism that those making the lowest scores on either scale might have made scores somewhat below their actual ability, while those making the highest scores made scores higher than their real abilities. This, of course, would result in spuriously large gains for those making the lowest scores and spuriously small gains for those making the highest scores. The means of the two scores would have been better measures to use, but these, too, would have been open to the same criticism only to a lesser degree.

To meet this issue squarely, the gains have also been computed in each case for the scale other than that on which the ten per cents having the lowest and the highest scores were determined. This would tend to swing the effect of the error of selection just as far in the opposite direction. Let us see what happens. In Table V we have the gains made on Scale B by the ten per cent of the students making the lowest scores on Scale A. Likewise in Table VI we have the gains made on Scale A by the ten per cent making the lowest

TABLE V

MEAN GAINS ON SCALE B BY THE TEN PER CENT MAKING THE LOWEST SCORES ON SCALE A

Group	Mean Initial Scores on Scale B	Mean Gains
(1)	(2)	(3)
Academic 1 W	72	23
Pre-Medics.....	80	18
Pre-Dents.....	81	20
Section I.....	80	13
Section II.....	82	18

TABLE VI

MEAN GAINS ON SCALE A BY THE TEN PER CENT MAKING THE LOWEST SCORES ON SCALE B

Group	Mean Initial Scores on Scale A	Mean Gains
(1)	(2)	(3)
Academic 1 W	74	26
Pre-Medics.....	79	30
Pre-Dents.....	81	18
Section I.....	81	15
Section II.....	80	20

TABLE VII

MEAN GAINS MADE ON SCALE B BY THE TEN PER CENT MAKING THE HIGHEST SCORES ON SCALE A

Group	Mean Initial Scores on Scale B	Mean Gains
(1)	(2)	(3)
Academic 1 W	81	20
Pre-Medics.....	90	21
Pre-Dents.....	87	15
Section I.....	91	21
Section II.....	95	14

TABLE VIII

MEAN GAINS ON SCALE A BY THE TEN PER CENT MAKING THE HIGHEST SCORES ON SCALE B

Group	Mean Initial Scores on Scale A	Mean Gains
(1)	(2)	(3)
Academic 1 W	79	21
Pre-Medics.....	91	18
Pre-Dents.....	84	22
Section I.....	91	20
Section II.....	93	18

scores on Scale B. The corresponding data for the ten per cent making the highest scores on Scale A and Scale B are given in Tables VII and VIII.

On comparing the gains in Table V and Table VII, instead of finding all the gains in Table VII higher than the corresponding gains in Table V, we find only two of the five higher, and one of those only slightly higher in spite of the severity of this method of testing which is far too severe a one. A comparison of the gains in Table VI and Table VIII reveals the same tendency. Three of the gains made by the lowest ten per cent of the students are higher than the corresponding gains of the highest ten per cent, while only one other gain is but slightly below the corresponding gain for the highest ten per cent.

From the data in the last four tables it is apparent that even when the gains are measured with the scale opposite from that on which the groups were selected the gains are still in favor of the lowest ten per cent in three cases out of the five. In the classes showing the smallest gains in favor of the highest ten per cent, the actual gains are undoubtedly in favor of the lowest ten per cent. In only one class in each comparison, Section I, is the difference as pronounced in the last four tables as in the first four. For this class the difference in favor of the highest ten per cent is probably a real one.

In analyzing the class rank of Section I, one finds in this class an undue proportion of Sophomores and upperclassmen. This is especially true of the particular students who chanced to fall into the two groups especially considered in this study; namely, the lowest and the highest ten per cents in initial scores. More than seventy-five per cent of the highest ten per cent in Section I were Sophomores rather than beginning Freshmen. It is possible that these Sophomores, on account of a year's work in college, may have had some other science and developed a more serious attitude toward their work and hence profited more from the lectures and laboratory work taken before the initial tests were given in this section than did regular beginning Freshmen. For this reason the gains for the highest ten per cent may be somewhat out of proportion. This is offered as a possible explanation for the variation, since in so far as we know, Section I and Section II were parallel classes having the same laboratory work and had identical lectures from the same lecturer in the department, namely, from Mr. Dwight E. Minnich.

Even if the results are taken at their face value, it is evident that the students having the highest initial attainments tend to make lower gains than those having the lowest initial attainments. In spite of their somewhat greater gains the lowest ten per cent of the students cannot reach the final attainment of those having the better start.

The results just cited are not due to the peculiar selection of cases nor to the small number of cases in each group selected, for the same tendencies were apparent when the lowest and highest fifteen per cents were used and also when the lowest and the highest twenty per cents were used. Nor can the validity of the

scales be seriously questioned, for in a detailed analysis of the scores the students tended to make as high scores when the scores were determined on the basis of the hardest group of items. Furthermore, the items were as numerous at the upper end of the scale as at the lower end with adequate compensations made for still harder items that might have been done by the students making the highest scores. As a further proof of the validity of the scales, it is only necessary to call attention to the mean scores in each of the initial tests for the respective groups—that is, for Academic 1 W they were the lowest; they were highest for Section I and Section II, and for the Pre-Medics and Pre-Dents they were somewhere between those of Academic 1 W on the one hand and those of Section I and Section II on the other. This is consistent since the first test was given to the Academic 1 W group the first day of the course; the Pre-Medics and the Pre-Dents took the initial tests when one-sixth of the course had been completed, while the two remaining classes, Sections I and II, took their initial tests when one-fourth of the course had been covered.

[Vol. II, No. 6]

Teaching College Students How to Read

By F. W. PARR

An Experiment in Remedial Instruction at the University Level

DOES successful mastery of many of our college courses depend in a large measure upon the ability to read textbook material rapidly and accurately? A number of educators have given us evidence which would lead us to answer this question affirmatively. These investigators have pointed out that many college students are poor readers, and are handicapped in their school work because of this inferior reading ability. Some have even gone as far as to suggest the reasons for the reading deficiencies, but only a few have attempted to correct them.

With the co-operation of the College of Education at the University of Iowa, the writer set up and administered a remedial reading program at that institution during the school year 1928–29. Arrangements were made to select some group taking an education course, to give this group a silent-reading test, and then to compare reading scores with achievement in the course as measured by the semester mark. The Iowa Silent Reading Test, selected because of its diagnostic value, was given to a group of 169 Juniors and Seniors who were enrolled in educational psychology

during the first semester. Table I shows how these students fared in the course as compared to their scores on the reading test.

Of the 36 students who scored 150 or less on the reading test, namely, the lowest fourth, 33 per cent, according to Table I, received a semester mark lower than "C" as compared to 13 per cent of the normal readers, and 4 per cent of the superior readers.

THE same procedure was followed with the second-semester group which took the course in educational psychology, except that an additional reading test was used. This test, which we shall call the "Educational Psychology Reading Test," was constructed by the writer to measure ability to read educational-psychology material. Those students who scored in the lowest quartile on the reading tests were called together during the first week of the semester and were shown the results of Table I. They were further informed that the College of Education had made provisions to give some remedial instruction to those who had scored low on the reading tests. A careful diagnosis was made of the reading deficiencies of each of the 20 students who were selected for the experiment, and remedial exercises and instruction were provided.

These students met with the writer for a two-hour laboratory period once a week for a period of fifteen weeks. In addition to remedial drill in the various phases of silent reading they were given instruction in how to study efficiently. The results of the remedial instruction, which are of most interest to us here, were expressed in terms of three types of improvement or achievement: improvement in silent reading, achievement in the course in educational psychology, and improvement in general scholarship.

TABLE I

READING SCORES AND GRADES BELOW C MADE BY THE FIRST-SEMESTER CLASS

Reading Score	Number in Group	Percentage of Marks below C
(1)	(2)	(3)
150 or less	36	33
151–200	77	13
More than 200	56	4
Total	169	14

TABLE II

COMPARISON OF THE COMPREHENSION SCORES ON THE TWO READING TESTS

	Average Comprehension Score			*SD* Units
	Final	Initial	Gain	
(1)	(2)	(3)	(4)	(5)
	Educational Psychology Reading Test			
Experimental Group	57	44	13	1.37
Control Group	60	52	8	.62
Difference	—3	—8	.....	.....
	Iowa Silent Reading Test			
Experimental Group	173	128	44	2.17
Control Group	210	186	24	.79
Difference	—37	58	.....	.....

Gains in comprehension, as they are measured by the Educational Psychology Reading Tests, were made by every member of the experimental group. Two control groups were used in this investigation. One, which we shall call the "first-semester control group," consists of those students

who made correspondingly low reading scores the first semester; while the other, called the "second-semester control group," is made up of those students taking the course in educational psychology the second semester whose reading scores exempted them from remedial instruction. Most of the comparisons are made between the experimental group and the second-semester control group. Unless otherwise designated the term, "control group," will refer to the second-semester group. Six members of the control group not only failed to gain, but actually lost, in comprehension ability. The average gain for the two groups is shown in Table II.

TABLE III

A Comparison of the Average Rate Scores on the Educational Psychology Reading Test Showing Relative Gains

	Words Read per Minute			*SD* Units
	Final	Initial	Gain	
(1)	(2)	(3)	(4)	(5)
Experimental Group	331	239	92	2.47
Control Group	305	261	54	.85
Difference	26	—22	.....	.....

Considered either in terms of gross score gain or standard deviation unit gains, the experimental group showed approximately twice as much improvement as did the control group. The gains for members of the experimental group ranged from +.10 to +2.84 standard deviation units; while those for the control group ranged from −.84 to +1.67. There was an average difference of 8.69 score points between the two groups on the initial reading test, whereas a difference of only 2.64 was found between their mean scores on the final test. The final test showed the two groups to be nearly equal in comprehension ability at the end of the experiment.

The transfer effect of the remedial training was measured by the Iowa Silent Reading Test, which we have designated as a test of general reading ability. A comparison of comprehension scores on this test is shown in Table II, also.

ATTENTION is called to the fact that each of the 20 members of the experimental group showed a gain, whereas several of the 42 members of the control group who took the test failed to gain. The range of gains for the experimental group was from +.69 to +3.68 *SD* units as compared to a range of from −.36 to +1.55 *SD* units of gain for the control group. The average comprehension gain for the experimental group according to Table II was almost three times as great on this test as that for the control group. This gain is not so significant as it appears, however, for we would expect a greater score gain by members of the experimental group, since they had more room for improvement than did the control group. However, the fact that the average final comprehension score for the experimental group almost approached the average initial comprehension score for the control group, a group of better than average readers, indicates that the remedial instruction in a specific type of reading has transferred to some extent to the broader field of reading.

Gains in rate of reading, as they are measured by the Educational

Psychology Reading Test, are shown in Table III. Thus, it was found that the experimental group read an average of 239 words per minute on the initial test as compared to 261 words per minute for the control group, or an average difference of 22 words per minute in favor of the control group. However, on the final test the advantage was reversed; the experimental group read 331 words per minute as compared to 305 for the control, or a difference of 26 words per minute in favor of the experimental group. Individual members of the experimental group showed increases in rate of reading as high as 116 per cent. Every member of the experimental group made an increase in speed of reading.

Finally, it should be mentioned that improvement in reading ability in this experiment was found to vary according to mental ability; that is, those of highest intelligence profited most from the remedial instruction, while those of lowest intelligence profited least. This bears out the findings of other investigators such as Book and Pressey.

THE student's progress in the course in educational psychology was measured in five different ways in this experiment: by scores on four true-false tests given during the semester, by scores on four chapter tests, which were used to determine adequacy of preparation over four different assignments, by initial and final scores on a true-false test of 104 items, by composite-test scores, and by semester marks received in the course.

On all but one of the four true-false tests given during the semester the average scores for the experimental group equaled or excelled those for the control group. The average difference for all four tests, only 1.5 score points, was in favor of the experimental group. Although there was some variation in the scores made on the four chapter tests by the two groups, the average difference on all four tests was 8.2 per cent score points in favor of the experimental group. On the true-false test of 104 items, which was based upon the subject-matter of the entire course, the control group made higher scores on both the initial and final tests, the difference between the average scores of the two groups was less on the final test than on the initial. However, considering standard deviation units —2.21 and 2.57—the advantage was slightly in favor of the control group.

TABLE IV

PERCENTAGE OF EACH GROUP WHICH RECEIVED THE INDICATED MARKS

Semester Mark	Experimental Group (20 Students)	Second-Semester Control Group (56 Students)	First-Semester Control Group (36 Students)
(1)	(2)	(3)	(4)
A	15	7	3
B	25	27	11
C	35	45	53
D	25	21	28
Failed	.....	.....	5

The next comparison was made on the basis of composite-test scores earned by the two groups. These composite scores, which were used in determining the students' semester marks, were obtained by totaling the

scores of the four true-false tests with the final score on the long true-false test just mentioned. The difference between the two average scores—302 for the experimental group and 300 for the control group—while being slightly in favor of the experimental group appears to be insignificant until one considers the difference in the mental ability of the two groups. The average percentile rank on the American Council Psychological Examination for the three groups was as follows: experimental group, 51.5; second-semester control group, 71.7; first-semester control group, 39.4.

TABLE V

DISTRIBUTION OF STUDENTS ACCORDING TO MARKS AND ABILITY

Mark in Course	Number of Students	American Council Percentile Rank			
		100–76	75–51	50–26	25–0
(1)	(2)	(3)	(4)	(5)	(6)
	Experimental Group				
A	3	.....	2	1	.....
B	5	.....	5	.....	.....
C	7	1	2	1	3
D	5	.....	2	1	2
	Control Group				
A	4	3	1	.....	.....
B	12	11	1	.....	.....
C	24	9	10	4	1
D	9	2	2	4	1

The final measures used to compare the progress of the groups in educational psychology were the semester marks which were received in the course. Table IV shows the percentage of each group which received the indicated semester marks. It is interesting to note that 15 per cent of the experimental group received "A" in the course as compared to 7 per cent for the second-semester control group, and 3 per cent for the first-semester control group. The results shown in Table IV should be compared with those found in Table I, which were referred to earlier in this report. The experimental group not only far excelled the first-semester control group, a similar group of poor readers, but also fared as well or better than the second-semester control group.

Table V shows the semester marks received in educational psychology in comparison to the mental ability of the students who took the course. It is interesting to note that of the three experimental students who were marked "A" in the course, two were in the third and one was in the second quartile in intelligence; while in the control group, three of the four "A's" were earned by students in the fourth or upper quartile, and only one in the third quartile. It is significant to note, also, that the highest mark received by a control student who ranked below the third quartile in intelligence was a "C"; whereas, one such student in the experimental group earned an "A."

THE third, and last, type of evidence to be presented relates to improvement in general scholarship. Four comparisons were made to show the effect of the remedial instruction on scholarship: (1) mean grade-point[1] average for the semester during which the remedial instruction was given versus the mean previous general grade-point average; (2) mean

[1] Grade-point system used at the University of Iowa gives the following numerical values to the various grades: A, 4; B, 3; C, 2; D, 1; incomplete, 0; conditioned, —1; failed, —2.

grade-point average for the semester during which the experiment took place versus the mean grade-point average for the previous semester; (3) number and percentage of students making gains or loss in grade-point averages; and (4) the number and percentage of students in each group who earned a grade-point average that was higher for the semester under consideration than for any one previous semester. Table VI shows the gains made in mean grade-point averages for the semester during which the remedial instruction was given over the previous general grade-point averages. The students in the experimental group made an average gain of .3 of a grade-point, whereas those in the other two groups showed small losses. The standard deviations for the experimental group were low (.49 and .48) indicating that the improvement was fairly uniform for the students in this group. The gain represents an increase of 16 per cent for the experimental group. With the exception of four students, every member of the experimental group showed a gain over his previous general grade-point average. Increases of at least .5 of a grade-point were made by six of the experimental students.

TABLE VI

COMPARISON OF MEAN GRADE-POINT AVERAGES

Mean Grade-Point Averages	Experimental Group (20 Students)	Second-Semester Control Group (54 Students)	First-Semester Control Group (32 Students)
(1)	(2)	(3)	(4)
Second semester	2.17	2.27	1.86
Previous general	1.87	2.28	1.94
Previous semester	1.90	2.40	1.97
Gain second-semester previous general	.30	—0.01	—0.08
Gain second-semester previous	.27	—0.13	—0.11

In order to evaluate these gains, a further check was made in which the mean grade-point averages for the second semester were compared with those earned the previous semester. The experimental group again made the only increase in grade-point average over the first semester. Although the actual gain appears to be slightly less than in the previous comparison, the difference between the experimental group and the two control groups is even more pronounced than before. The experimental group made a gain of .27 grade-points, as compared to losses of .13 and .11 grade-points for the control groups.

Table VI gives comparisons of group averages, and shows in each case that the experimental group made greater gains in scholarship than did either of the two control groups. The summary which follows presents a further type of comparison, showing the percentage of students in each group who gained in grade-point averages:

	Previous General	Previous Semester
Experimental Group	80	70
Second-Semester Control Group	56	35
First-Semester Control Group	41	41

Comparing the second-semester grade-point averages with previous general averages, we find that 80 per cent of the 20 students in the experimental group made gains; that is, about three times as many members of the experimental group made gains as made losses in grade-point averages. In the

two control groups more losses than gains were made.

One further comparison, showing the percentages of each group that received higher grade-point averages than ever before, is given here:

	Percentage of Group
Experimental Group	45
Second-Semester Control Group	11
First-Semester Control Group	13

It shows that 45 per cent of the experimental group made grade-point averages during the period of remedial instruction which were higher than they had ever earned before; whereas, only 11 and 13 per cent, respectively, of the members of the two control groups made such averages. In other words, about four times as many experimental students as control students made their highest grade-point averages during the second semester, when the remedial instruction was given.

THE results which have been given up to this point show the immediate effects of the remedial instruction. In order to have some measure of the carry-over, or transfer value, of the training, the writer obtained from the Registrar of the University the grade-point averages of the students of the experimental group for the year following the remedial instruction. Three members of the experimental group were Seniors and, hence, no follow-up data are given for them. Of the 16 students for whom data were available for both years, ten made higher grade-point averages for the year following the remedial instruction than they did for the year in which the training was given. Three students made lower averages, while a like number earned approximately the same averages for the two years under consideration. The average difference for the whole group was .12 grade-points. During the year following the remedial instruction nine members of the experimental group earned grade-point averages for one of the two semesters which were higher than for any previous semester. The reader is reminded that a like number of students in the experimental group earned record grade-point averages for the semester during which the remedial training was given. Six of the nine students who made record grade-point averages during the period of remedial training repeated their performance the following year. [Vol. II, No. 6]

Summer Opportunities

By ARCHIE M. PALMER

A Thumb-Nail List of the Professional Courses on Higher Education to Be Given in Summer Schools

IN RECENT years the summer sessions conducted on college and university campuses have provided an immeasurable stimulus to the professional growth of the members of the college faculties, and a steadily increasing number of college administrators and teachers have been taking advantage of the opportunities for in-service improvement offered during the long vacation period. Whereas a decade ago the principal groups served in summer sessions were undergraduate students, many of them making up scholastic deficiencies, now the predominating group is composed of teachers and other professional men and women who are unable to attend courses during the academic year.

Not only do faculty members and graduate students planning to enter college teaching seek subject-matter courses in their chosen fields, but they also demand professional courses designed to improve their teaching technique and to provide them with a broad conception of the college enterprise. College administrators are also being attracted by the opportunities offered during the summer months for the study and discussion of problems in higher education.

No less than twenty-four institutions have announced for this summer courses on various aspects of college administration and college teaching. Included in the group are the Universities of California, Chicago, Cincinnati, Colorado, Kentucky, Michigan, Minnesota, Missouri, Nebraska, Pittsburgh, Southern California, Washington, and Wisconsin; Duke, Indiana, New York, Northwestern, Ohio State, Stanford, and Western Reserve Universities; Colorado State Teachers College, George Peabody College for Teachers, Iowa State College, and Teachers College of Columbia University.

The regular teaching staffs of these institutions are augmented by specialists and experienced workers in college administration and teaching who can be enlisted during the summer months to direct work of this character. Among those giving their services this summer are a number of college presidents, among them Frank L. McVey, of the University of Kentucky; George F. Zook, of the University of Akron; Homer P. Rainey, of Franklin College; and Wendell S. Brooks, of Intermountain Union College; former presidents Clarence C. Little, of the University of Michigan;

George A. Works, of the Connecticut Agricultural College; and A. M. Stowe, of the University of the City of Toledo; Vice-President C. S. Yoakum, of the University of Michigan; and a number of presidents of teachers' colleges. Deans H. D. Sheldon, of the University of Oregon; Shelton Phelps, of George Peabody College; H. L. Smith, of Indiana University; Charles E. Friley, of the Agricultural and Mechanical College of Texas; and A. J. Brumbaugh, of the University of Chicago, are also conducting courses this summer; as are Registrars Ezra L. Gillis, of the University of Kentucky, and J. R. Robinson, of George Peabody College, and many other experienced survey and research workers in the field of higher education.

While the offerings at most of the institutions are limited to a single course or two on selected phases of the field, there are to be found more comprehensive and varied programs available at several institutions. The courses offered at the University of Chicago include: The Organization and Administration of Colleges and Universities, Problems of College Instruction, Financial Administration of Higher Institutions, Professional Duties of Deans and Registrars, The Administration of Student Personnel in Higher Institutions, The Junior College, Its Organization and Administration, The Organization and Administration of Teacher-Training Institutions, and Problems of Instruction in Teacher-Training Institutions. In addition to this sequence of courses, an institute for administrative officers of higher institutions will be held at the University of Chicago on July 8, 9, and 10, to which officers of such institutions are invited. The central theme of the institute this summer will be Recent Trends in American College Education.

THE variety and scope of the courses on the organization and administration of higher education which have now been offered at Teachers College, Columbia University for the past eight years have been steadily increasing. During that period opportunity has been offered for the study and discussion of a wide range of problems in the field of higher education to some 540 instructors, administrative officers, and others interested in higher educational institutions. The offerings for this summer include two basic courses for instructors and administrators in higher-educational institutions, a course on Problems of College Instruction, one on Student Personnel Work, one on Publicity and Public Relations, one on Finance and Business Operation, and a series of eight two-week unit courses on special problems in higher education. The units are devoted to such topics as the investment of institutional funds; accounting for institutional funds; tests, measurements, and rating scales; admission and classification of students; registration and student records; the college curriculum; the work of the dean of the faculty; and vocational guidance in colleges. A number of related courses are also available, including those dealing with problems of teacher training,

guidance, and junior college, and the teaching of special subjects.

Arthur J. Klein, who until the fall of 1930 was Chief of the Division of Higher Education of the Office of Education at Washington, has recently joined the permanent staff of Ohio State University. He with several associates will teach courses in higher education at Columbus this summer. Among those offered are courses on Administration of Colleges and Universities, Financial Administration in Higher Education, College Teaching, and Administration of the Junior College, and a Seminar in Administration of Higher Education. Two courses on Psychological Problems of Deans of Women and one on Research Problems of the Dean of Women will also be given, as well as courses on Psychological Problems in Higher Education, Professionalized Subject-Matter Courses in Teacher-Training Institutions, and Administration of Teacher Training Institutions.

Five courses in the field of higher education will be offered this summer at the University of Michigan. One of these courses is on the History of Higher Education in the United States. In another, Current Problems in Higher Education, directed by Vice-President Yoakum, the following general topics will be discussed in their present bearings on educational policy: selection, assignment, counseling, and supervision of students; trends in curriculums, teaching, faculty personnel; tendencies in college and university organization and administration. Two courses will be given in the field of personnel problems in colleges, one a seminar designed for an intensive study of special problems in connection with personnel and guidance departments of high schools and colleges and the other a less advanced course involving a study of traits associated with successful and unsuccessful students. There is also being offered a course on The Teaching of English in College, which consists of analysis and discussion of the problems of teaching the elementary or introductory courses in English composition, language, and literature.

FOUR summer courses in higher education are announced by the Department of Higher Education at the University of Pittsburgh. The discussion in the course on College and University Administration will bear particularly on the junior-college years and their particular problems. Courses will also be given on Educational Personnel Methods in College and University and on Office Organization and Record Forms, as well as the Major Course for Deans of Women. A conference for the discussion of both internal and external problems of the junior college will be held at the University in July.

Basic or general courses are offered under various titles at seven other institutions. At the University of Colorado President Brooks will give a course on Problems in Higher Education in which the history of the college in the United States will be traced, including the development of its curriculum, the functions of its officers, and its expansion to the university type, as an introduction to a survey of present conditions. Dean H. L.

Smith announces a course at Indiana University entitled The Thesis in Higher Education, which is designed as a device for giving credit for doctoral thesis work when the thesis is in the field of higher education. President McVey gives a course on The Administration of Higher Education at the University of Kentucky which deals with problems relating to the organization and administration of universities, colleges, and teacher-training institutions; financial problems of higher institutions; and professional duties of registrars, deans, and business managers. During the first term of the University of Minnesota summer session President Rainey will offer a course on Problems of College Education. A Seminar in University and College Administration to include a critical study of types of organization and administrative practices found in American universities and colleges is announced at New York University. At Duke University a study of current college problems and of experimental efforts being made toward their solution is made in the course on American College Problems, directed by A. M. Stowe. A general course entitled Research in Higher Education is offered at Western Reserve.

ATTENTION is being given to the questions of college instruction and its improvement in the courses announced for this summer not only in the basic courses, but also in specific courses on this subject which are being offered at a number of institutions. Dean Sheldon, of the University of Oregon, is holding a Seminar in the Improvement of College Teaching at Stanford University. Introduction to College Teaching is the title of a course being given at the University of Southern California. A course on Methods of Teaching College Subjects with special reference to the use of motivated problems in presenting technical subjects is being offered at the Iowa State College. At the University of Missouri a course on College Teaching Methods has been announced. The Improvement of Teaching in Colleges and Universities is the subject of a course to be given at New York University. At the University of Cincinnati Carter V. Good has announced a course on Problems of Teaching in Higher Education, and at Ohio State a course in College Teaching will be given. Dean Phelps is teaching a course with a similar title at George Peabody College for Teachers in which will be included the visitation of college classes and directed teaching.

Reference has already been made to the courses on Problems of College Instruction at the University of Chicago and at Teachers College. Courses on training-school problems in the professional education of teachers, intended primarily for those concerned with teacher-training institutions, are offered at the Universities of Chicago, Minnesota, and Wisconsin, Ohio State, Colorado State Teachers College, and George Peabody College for Teachers. In these courses are included the consideration both of administrative and of instructional problems.

Courses of particular value to those concerned with or interested

in the office of the college registrar are offered at the Universities of Chicago and Kentucky, at George Peabody College for Teachers, and at Teachers College. The course at the University of Chicago is given by Dean Charles E. Friley, of the Agricultural and Mechanical College of Texas, who has for a number of years been making intensive studies of the professional duties of deans and registrars. Ezra L. Gillis, the "dean of college registrars," offers two courses at the University of Kentucky this summer, one on Problems in the Registrar's Field of Administration and the other on Technique and Professional Work of the Registrar. At George Peabody College for Teachers J. R. Robinson, the registrar of that institution, has for a number of years now been offering a general course on The College Registrar. Teachers College, Columbia, included among the series of two-week unit courses on special problems in higher education, previously referred to, one on the admission and classification of students and another on registration and records.

Special courses on the financial and business administration of higher institutions are offered at the University of Chicago, at Teachers College, and at Ohio State. Among the topics treated in these courses are the organization of financial and business offices, accounting, budgeting, and reporting procedure, cost analyses, management and investment of endowment and other trust funds, the financing of supplementary business activities, purchasing and supply management, plant operation and maintenance, and the administration of student fees, scholarships, and loan funds. The course at the University of Chicago is directed by Messrs. Russell, Reeves, and Works; while T. L. Hungate, the auditor of Teachers College, with E. S. Evenden and F. B. O'Rear will give the course at Teachers College.

Thomas E. Benner, former Chancellor of the University of Porto Rico, gives a course on Publicity and Public Relations at Teachers College, in which attention is directed to such topics as the institutional organization for publicity and public relations, publicity and publications, student recruiting, financial campaigns, alumni and alumni work, abstracting, news clipping, and other services. A course on Vocational Guidance in Colleges is offered at the same institution by Harry D. Kitson. Methods of gathering information about occupations in which college students engage, methods of imparting this information, techniques of analyzing and counseling with individuals are among the areas covered.

INSTRUCTION in the work of deans of men, deans of women, and other personnel officers is announced among the offerings at the Universities of Chicago, Ohio State, Michigan, Pittsburgh, and Southern California, New York University, and Teachers College, Columbia University. Such topics are included as the meaning and scope of personnel work, the selection and admission of college students, their orientation into the college environment, educational guidance and vocational counseling, extra-curricular activities, student discipline and student government, placement and

part-time employment, the moral and religious life of students, health service records and reports, and the administrative organization of personnel. Attention is also given to the study of objective data and experimental investigations bearing on these topics.

The following institutions will this summer offer specific courses on the junior college: the Universities of California, Chicago, Missouri, Nebraska, Southern California, and Washington; Duke, New York, Northwestern, Ohio State, and Stanford Universities; George Peabody College for Teachers; and Teachers College of Columbia University. These courses are intended both for administrators and instructors in junior colleges and for those interested in learning about this important educational movement. The genesis and development of the junior college, its purpose, objectives, curriculum, and administration, and its articulation with the high school and senior college and university are the usual content of these courses. In several instances the approach is made from the secondary-school angle. At Teachers College three distinct courses on the junior college are given: one a general course, one on curriculum and instructional practices, and one on problems of administration. Under the direction of Walter C. Eells, editor of *The Junior College Journal*, Stanford University also offers a group of related courses on the various aspects of the junior-college work. Superintendents of schools, principals and directors of junior colleges, as well as professors of secondary education, are conducting these summer offerings.

Last year a total of twenty institutions announced summer courses on the professional study of problems of higher education. Although three of these—the Universities of Alabama, Idaho, and Texas—are not offering such courses this summer, the number of institutions has been augmented by seven new ones, bringing to twenty-four the total number of institutions announcing such courses for this summer. The individual course offerings have also been expanded materially both in number and in scope, and in addition to these specific professional courses there are offered both in summer sessions and during the academic year many courses on the history, principles, and philosophy of education and in particular subject-matter fields which are of value and interest to college teachers and administrators. The rapidly extending interest in problems of higher education is placing demands upon our colleges and universities for enlarged and more effective service which they are in this way making efforts to meet.

· *With the* · Technicians ·

"No university is worthy of the name of a university unless it combines both teaching and research. Teaching without contributing to knowledge is at best a parasitic existence" is the conclusion of Ross Aiken Gortner, who evaluates the relation of the university and fundamental research in an article for the *Journal of Chemical Education*. Mr. Gortner cites instances of contributions made to ordinary living by university professors, and vehemently avers that it is the responsibility of the university to foster research contributions.

An interesting attempt to gauge the probability of success of college students is told in *Predicting the Scholastic Success of College Students* (University of Illinois Bulletin No. 52) written by Charles W. Odell. The general policy of state-supported universities is to admit all who desire admittance; that of other institutions to check enrollment by various means. The purpose of this bulletin is "to present data which show the accuracy of high-school marks, intelligence-test scores, and other data in predicting the persistence in school and the marks of college students." The high-school data were assembled through the co-operation of 368 four-year high schools.

"The criteria employed in this study did not yield highly accurate predictions of success in college as measured by marks received and length of attendance, yet they exhibited some relationship therewith." The reliability of prediction can be increased considerably with the use of longer and more reliable intelligence tests, such as Thorndike's Intelligence Examination for High-School Graduates.

A by-product of this investigation was a study of relationships of size of high school and the college average together with persistence in college. It was learned that students from high schools slightly below one hundred in enrollment were slightly below average, and remained enrolled in college for a relatively shorter period of time. Pupils from high schools with an enrollment of from five hundred to nine hundred ninety-nine seemed to be at a slight advantage, but there is little relation between size of high school attended and college success.

To discover whether there is a possible relation between scores on a psychological examination and membership in a college fraternity, Philip E. Harriman, of Bucknell University, has undertaken a study which is reported in the *Peabody Journal of Education*. Basing his estimates on the results of the 1930 Psychological Examination of the American Council on Education, Mr. Harriman learned that the range of scores was much greater in the non-fraternity group,

both the highest and the lowest scores falling to unpledged Freshmen. The median score for the fraternity group is 138.8 and for the non-pledged group, 134.3. It would thus appear that intelligence is a valuable trait during a Greek-letter rushing season.

Since the 1930 Freshmen at the University of Chicago are the last who will enter under the so-called "Old Educational Plan," the *University of Chicago Magazine* presents a complete statistical survey of this body in an article written by two alumni, George R. Moon and A. J. Brumbaugh. Results of the new system will be constantly compared with those of the old—perhaps the new plan will stand or fall in the light of its relation to the achievements of the class of 1934 under the old plan.

The present class is one of the most able ever to be enrolled in the University. Approximately three-fourths were from the upper thirds of their high-school graduating classes. Less than 10 per cent had high-school averages below 85; forty-one were valedictorians; one hundred thirty-eight, or 20.5 per cent, received full or partial scholarships. The youngest student was just past fifteen years when he entered the University, and the oldest was well beyond forty; 18.3 years was the median age.

Many high-school activities were back of the members of this class, who came from 29 states, although 65.2 per cent were from Chicago, and only 22 per cent were from places outside Illinois. Teaching, business, law, medicine, or scientific research attract three-fourths of these Freshmen. The ministry, agriculture, and home-making are left out in the cold. Most of the students' parents were from the professional classes.

Success in practice teaching is the best single criterion of prediction of success in teaching, according to the study conducted by Roy Roland Ullman as *Prognostic Value of Certain Factors Related to Teaching Success*, a thesis written while studying for a doctorate at the University of Michigan. Other factors which have some predictive value are socio-economic status, academic and professional marks, social intelligence, general intelligence, interest in teaching, and knowledge of the principles of teaching. Major subject marks, beyond a certain minimum which is essential, seem to have little predictive value. The study is reported in a pleasingly modest fashion which recognizes and admits the limitations of the study.

In a special bulletin issued by the Ohio State University, a number of gross statistics are published for members of the teaching staff, "indicating university growth over a period of years, certain tendencies in college and student progress." These data are to be used in the current consideration of a projected junior division. According to this study, which embraces the academic years 1926–27 to 1929–30, the number of sections has increased from 1,068 to 1,348, while the average class has decreased from 37 to 29. Scanning the table of de-

linquencies by classes, it is apparent that the number of students on probation is decreasing in the lower two classes, but is increasing in the junior and senior years. The number of students dropped from college is increasing in all four classes.

An error was made in a note in this department in the February issue. Speaking of testing in junior colleges it was said that achievement tests were given to more than eleven hundred students in 47 different junior colleges. This sentence should have read, "eleven thousand students." We are indebted for this correction to Walter C. Eells, editor of *The Junior College Journal.*

Comparative Achievement

A study of the comparative achievement of campus and off-campus students has been furnished the JOURNAL by Mr. Robert H. Morrison, of Colorado State Teachers College.

A group of ten extension and ten residence students were paired to study comparative achievement in a course dealing with the history of education. Factors kept constant during the teaching periods were: (1) the instructor, (2) the textbook materials, (3) the work-book syllabus, (4) total amount of time used (1,485 minutes in extension and 1,500 minutes in residence).

The extension class consisted of a group of teachers in and near Boulder, Colorado. A work syllabus consisting of questions and exercises was prepared for use with both groups. Two hundred questions were prepared before beginning the instruction. These questions were objective in nature and based upon study materials available to both groups. The extension class met Saturday afternoons for a total time of 1,485 minutes. As a rule two periods of 55 minutes each were devoted to class discussion each Saturday afternoon. There was always a short recess between the two periods.

The summer residence class met daily. In all there were thirty periods of 50 minutes each devoted to class discussion by the summer residence class. There were fifteen students in the extension class and fifty-six in the summer residence class. The Thurstone psychological examination was given to both classes. From these intelligence scores it was possible for the instructor to match ten students in the extension class with ten students in the summer residence class. Data from these two groups of ten each were used in the comparison. The two groups were compared upon their ability to answer each question. That is, if more of the residence group answered question number one correctly than did the extension group, then the residence group was accredited with excelling upon that question. Tabulations and comparisons for all items showed that for the test as a whole the residence group showed superiority in answering 73 questions, tied with the extension group in answering 60 questions, and were excelled by the extension group in answering 67 questions.

These data are limited but suggestive. Many carefully controlled

experiments in comparative achievements will be necessary before valid conclusions can be stated. However, before further limitations and restrictions are placed upon extension-class instruction, some thorough research studies in comparative achievement should be made. It may possibly be true that, for certain courses, as fine results may be obtained in extension classes as in residence study.

Articulation

Studies in educational integration, both curricular and fiscal, are reported in the *Ninth Yearbook of the Department of Superintendence* of the National Education Association, entitled "Five Unifying Factors in American Education." Part One, limited to problems related to the promotion of pupils, contains a chapter on current efforts to meet the needs of individual students in institutions of higher learning. This consists of brief reports on pertinent phases of the student personnel work now in progress at nine institutions—Yale, Ohio State, Buffalo, Oberlin, Minnesota, Columbia, Purdue, Michigan, and Smith. Without implying that the types of organization outlined are adaptable to every situation, or prematurely proclaiming the unqualified success of the projects described, one may safely say that these reports are a veritable mine of suggestions with which no college or university administrator can afford to be unfamiliar.

Part Two, on the articulation of the schools with the community, contains three chapters on adult education. One of these is a stimulating philosophical discussion of the relation between adult learning and social progress. Two others describe adult-education programs now functioning in the city of Minneapolis and in the state of Minnesota. Part Three is a discussion of the relation of general and professional education in the preparation of teachers.

Part Four is a comprehensive study of the fiscal aspects of articulation, centering around the consolidation of the official agencies of educational control, the unifying influence of the various extra-legal agencies, and the operation of more or less centralized state budget systems in typical states. There is an illuminating array of statistics on the present distribution of expenditures for education. Rivalry among institutions and among different levels and types of education often leads to ill-balanced and wasteful expenditure, the result of failure to see the educational needs of the state as an integrated whole. The possibility of developing a unified state system of financial support for public education is worthy of the thought of educational statesmen in every state. Part Four of the Yearbook is a real contribution toward the recognition and the solution of what may well be the most far-reaching problem that confronts public education.

·The·Reporter·

DESPITE the depressed times the legislature of the state of Arkansas has appropriated $2,000,000 toward the development and extension of the State University and other colleges. This is the largest amount of money appropriated at one time for building expenses in the state of Arkansas.

THE *New York Times* reports in a recent article that aviation courses are now offered in seventy-four colleges in the United States, leading in some cases to the degree of Master of Arts or Doctor of Philosophy in Aeronautical Engineering.

HARVARD UNIVERSITY has for the first time in its history recognized sociology as a distinct discipline. Next fall a Department of Sociology will be organized under the direction of Professor Pitirim Sorokin, formerly professor of sociology at the University of St. Petersburg.

THE Associated Press recently reported a study of orthodoxy conducted by Mr. Allport and Mr. Katz, psychologists at Syracuse University. These investigators made an analysis of the answers of fifteen hundred students to questionnaires on student attitudes.

On all matters of belief the trend of students after entering college as contrasted with their attitudes and beliefs upon entering, say the psychologists in the work *Student Attitudes* soon to be published, has been toward greater unorthodoxy or liberalism.

There is nothing, the authors say, to indicate that this trend has changed since the survey made by them in 1926.

There is, therefore, some support for the notion that college students are tending to become more liberal in their views, and less constant in their religious observances.

This tendency, however, does not seem to be sufficiently rapid to justify anxiety for those who believe that increasing unorthodoxy is dangerous. The adjustments which students are making appear on the whole to be accompanied by a new and satisfying philosophy of life, rather than a confusion of ideals and standards.

THE faculty meetings of the Graduate School of Marquette University are here described by Dean Edward A. Fitzpatrick, of the Graduate School, Marquette University. They have been conceived of as a means of developing interest among members of the faculty in the administration of the University, in the special problems of college teaching, and in a sense of appreciation of other fields of knowledge than the ones in which the professors are individually absorbed. During an entire year the faculty meetings were given over entirely to a presentation of the fields of knowledge in which graduate study is offered. The purpose was not so much the preparation of formal papers as

the indication of the general nature of the field and the applications of the University rules, as, for example, on Master's and Doctor's degrees and general examinations in the particular field. An outline indicating the subjects to be discussed was mimeographed and sent in advance to each member of the faculty. It was hoped that in this way each member of the faculty would have a more real appreciation of the work of the other members, ways of co-operating might be suggested, and better ways of handling administrative routine might be presented. The fundamental purpose, however, was the promotion of a sense of intellectual solidarity. The program for the year was in charge of a committee consisting of the Dean of the Graduate School, Mr. Edward A. Fitzpatrick, Mr. George E. Vander Beke, and Mr. John P. Treacy.

The subjects discussed included a history of the development of anatomic methods from Aristotle and Galen down to the work of the Rockefeller Institute of today, a history of psychology with emphasis for the present schools of psychology, the possibilities of speech as a subject of graduate study, the position of modern foreign languages in European universities with suggestions applicable to our own situation, the position of philosophy in the Catholic colleges and in non-Catholic colleges, an analysis of the different conceptions of the field of comparative literature with especial reference to the organic conception and conceptions within the field of national literature, of world literature, and of European literature, the social and the natural sciences.

The discussions brought out very interesting contrasting points of view among different departments, helped at least to a clarification of some of the problems, and pointed out the need for later discussion and more definite administrative rules. All of the papers dealt with such problems as desirable sequence of courses in the subject, the nature of the general examination in this field, desirable minors in relation to a major, essential equipment in the department, suggested new courses, possibilities with the present staff, and suggestions for improving the general conditions in the University with reference to special fields. These suggestions were then incorporated into a report to the President of the University and its general administrative officers with reference to budgeting.

THE Sixth Institute of Higher Education will be held at the University of Chicago on July 8, 9, and 10 of this year.

ROLLINS COLLEGE has recently announced that in awarding scholarships it has established the method of securing credit ratings of parents through the National Retail Credit Association.

THE Office of Education has published its *Record of Current Educational Publications*, including more than 50 references to publications in higher education, published between July and December, 1930, annotated by Mr. A. J. Klein, formerly Chief of the Division of Higher Education of

the Office of Education, and now professor of higher education at Ohio State University.

THE Association of American Colleges began a year ago a study of the smaller college. At the present time 116 colleges are co-operating in the study which covers the following areas:

1. Educational policy
2. Organization and administration
3. Personnel
4. "The raw material" (student supply) and the "product" (alumni)
5. Instructional facilities and techniques
6. Physical plant
7. Financial situation and needs
8. Such selected areas as student life, religious life, personnel guidance, extra-curricular activities, enrollment trends and special activities

Much specific data has already been gathered, and as the study develops and significant findings come to light, they will be brought to the attention of the colleges and will likely also be published. The investigation is under the direction of Mr. Archie M. Palmer, the associate secretary of the Association of American Colleges, who is being assisted by a group of graduate students.

THE editor of the *Journal of the American Association of University Women*, Mrs. Ruth Wilson Tryon, has written for the Journal the following report of the Fiftieth Annual Convention of the Association:

The Convention of the American Association of University Women at Boston, April 8 to 11, celebrating the fiftieth anniversary of the founding of the Association, furnished an arresting reminder of the change which a half-century has wrought in the position of women in the field of higher education. The first task undertaken by the early organization, founded in protest against the dearth of opportunities for college-trained women in the eighties, was a survey to prove to a doubting world that college education does not place an undue strain upon the physical powers of women. This recognition of the tentative place of women in the educational world stands in striking contrast to the program of the same Association fifty years later. On the day devoted to education, some 600 specialists, leaders in every field of the educational world, gathered at Boston for the discussion, which covered every level of education, from preschool to alumni.

Of particular interest was the report of Dean C. S. Boucher of the University of Chicago, on "Current Changes and Experiments in the Liberal Arts College." His paper embodied the results of a co-operative survey of more than 315 liberal-arts colleges, conducted under the leadership of Miss Kathryn McHale, executive and educational secretary of the Association, to discover what new ventures are being tried in the liberal-arts institutions, and to pool the results of the experimentation which has become so general in recent years. Mr. Boucher discussed the increasing care expended in selective admission to colleges, and noted the dangers and advantages of the more homogenous student body thus obtained. The study threw light upon a number of other departures, the variety of experiments being tried under the head of student guidance and personnel work; changes in the curriculum designed to cure the evils of the wide-open elective system, and to meet the divergent needs of students who wish to specialize and those who prefer general cultural development; the increasing emphasis upon teaching ability and the methods of imparting knowledge

as well as mastery of subject-matter; the weighing in the balance of the lecture method and the development of honors courses and comprehensive examinations in the hope of interesting the student in creative thinking rather than the amassing of credits; and the beginnings being made in programs of post-college education for alumni. The report closed with an optimistic forecast of increasingly useful service on the part of the liberal-arts college.

This study, representing as it does a co-operative stock-taking among liberal-arts colleges all over the country, affords an immensely valuable pooling of experience and a wealth of material bearing on techniques developed and results achieved. Mr. Boucher's summary will appear in the June *Journal of the American Association of University Women* and also in the *Bulletin of the Association of American Colleges* for May.

Practical interest of the American Association of University Women in promoting research was demonstrated by the announcement that in the past two years over $152,000 has been raised for fellowships, in addition to earlier fellowship funds which are disbursed by the Association.

A SUMMER school for engineering teachers will be held this year at the University of Michigan, June 23 to July 9. It will be followed by a Conference on Chemical Engineering Education held under the sponsorship of the American Institute of Chemical Engineers at Ann Arbor, on July 10 and 11.

ROLLINS COLLEGE has recently published a booklet entitled *The Curriculum for the College of Liberal Arts*, which is a report of the Curriculum Conference held at Rollins College from January 19 to 24, with Mr. John Dewey, professor emeritus of philosophy at Columbia University, as chairman.

ON APRIL 11, Yale University dedicated the Sterling Memorial library, erected at a cost of $7,000,000. The new library is of Gothic architecture, in keeping with the Memorial Quadrangle, the law school, and the graduate school buildings. It has a shelf capacity of from three million to four million volumes, and a seating capacity for two thousand readers.

THE Office of Education, Department of the Interior, has recently published a career circular entitled, "Mechanical Engineering." This circular describes the varieties of mechanical engineering open to the student, the colleges and universities giving courses, tuition charged, expenses, high-school credits, and the income earned by mechanical engineers.

IN THE current number of the *Wisconsin Alumni Magazine*, President Glenn Frank describes the preceptor system now used at the University of Wisconsin Medical School. Under this plan fourth-year medical students go to nearby cities and work under the direction of a practicing physician or clinician.

In commenting upon the plan, President Frank said:

"Students are receiving, in the opinion of many competent observers, more careful personal instruction in clinical medicine than is provided in any other medical school. . . . Our students are nearly as well trained at the end of their fourth year

in the medical school as the students of many medical schools are at the end of their interne year, which follows the fourth year in school.

TWENTY-FIVE Yale students will this summer be employed by Henry Ford, at a wage scale of from $6 to $7 a day, in the Ford plant at Detroit. The students will have opportunity to study mass production, industrial technique, employment problems, unskilled labor, and labor relations. In addition to the wage scale, $250 will be awarded in prizes for the best essays based upon the studies that the students will make. The students will live with the other Ford workers, but they will meet twice a week to discuss industrial relations.

IMPORTANT changes in the requirements for admission to the University of California were announced recently by Recorder T. S. Steel. The Academic Senate, he announced, has revoked the rule made at the time the new admission requirements were published, to the effect that "the subjects of the high-school program in order to be accepted by the university must conform in its scope and content to the definitions of the college-entrance Examination Board."

This action was taken when it was found that the rules announced in May, 1929, would bar students who offered as part of their work in English such courses as dramatics, public speaking, and journalism. Strict application of this rule, it was stated, would have the effect of wrecking the extensive program of instruction in dramatic arts, public speaking, and journalism which had been organized in many high schools throughout the state of California. Statistical studies prepared by high-school authorities were presented to show that preparation in these subjects is not inferior, as a guaranty of successful performance in the university, to preparation in English literature and composition as defined by the College Entrance Examination Board.

IN THE medical education chapter of the *Biennial Survey of Education in the United States, 1928–30*, Dr. W. C. Rappleye summarizes the significant developments in medical education during those two years. All medical-school administrators and deans of colleges who prepare students in their pre-medical work should read the report of this survey.

ON APRIL 28 New York University celebrated its centennial. Prominent educators and government officials participated in the Charter Day dinner which was held at the Astor Hotel. On the occasion of this anniversary, New York University records a faculty roster of seventeen hundred and approximately forty thousand students attending day and evening classes in the fifteen colleges and divisions which the University maintains in various parts of the city of New York.

THE Engineering Camp of Stevens Institute of Technology which is situated in northern New Jersey will be used for two weeks this summer, August 15 to 29, for an experiment in vocational guidance for boys just

finishing the third year in their high-school or preparatory-school course. Principals and head masters have been invited by the college to present the names of students who are interested or who think they are interested in engineering. The college will open the camp to them, and will provide a two weeks' program devoted to the engineering profession and its functions. In a letter outlining plans for the camp period, President Harvey N. Davis gave the following summary of the program:

> We propose, *first*, to give them a thoroughly good time in the open, *second*, to tell them by lectures, posters, and movies what engineering in general is all about, *third*, to give them some experience in a simple kind of engineering by a few hours a day of field work in elementary surveying, and *fourth*, to give each boy individually the best guidance we know how to give in choosing between an engineering and a liberal arts college.

President Davis suggests that an introduction to engineering is appropriate not only for the boy who seems to have the qualifications for an engineering career, but for a generation that must find their places in a "machine age."

THE first bulletin of the Institute of Human Relations, issued by Yale University, outlines the present research activities and the general purpose and scheme of the Institute, affording a view of the present status of this educational venture and of the progress made since the project was launched two years ago. Coincident with the issuance of the bulletin, President James Rowland Angell announced that the Institute would be formally dedicated on May 9. Speakers at the dedication were Ray Lyman Wilbur, Secretary of the Interior; Mr. George E. Vincent; Governor Wilbur Cross; and President Angell.

The research activities conducted directly by or in association with the institute fall roughly into three main groups, the bulletin states. In the first group belong studies designed to bring out the basic facts concerning the human and social organism; in the second are those dealing with immediate problems of human welfare, such as unemployment, crime, and public health, all of which demand the co-operation of specialists in many fields; and in the third group are studies dealing with specific problems in such fields as law, medicine, religion, education, economics, and government, in which the co-operation of various fields is not immediately essential or practicable.

THE University of Chicago has just announced that the Summer Quarter this year will be ten weeks instead of eleven as in the past. Because its length has been inconvenient for many teachers, the number of weekly class meetings during ten weeks will be increased so that the work previously done in eleven weeks can now be done in ten.

AT THE Yale Phi Beta Kappa elections, President Angell announced that of the fifty-one students admitted to the honorary society, but ten had taken their preliminary training exclusively at endowed Eastern pre-

paratory schools and nine at Middle Western private schools. The remaining 32 received all of their training in public high schools. Commenting upon this predominance of high-school graduates in Phi Beta Kappa, President Angell remarked:

> In other words, the eastern preparatory schools which pride themselves on their scholastic excellence and thorough training, and whose graduates make up two-thirds of each Yale class, furnish us with only one-fifth of the men who make Phi Beta Kappa, and the high schools, from which come only one-third of all Yale students, furnish us nearly four-fifths of the honor scholars.

THE General Education Board has authorized an annual grant of $110,000, over a period of not more than five years, to the North Central Association of Colleges and Secondary Schools. These funds are to be used toward the cost of formulating a new set of standards for judging the effectiveness of institutions associated, or which may hereafter become associated with the North Central Association. The sum is to be made available in any one year to be determined by the executive officers in consultation with the authorities of the Association.

THE faculty of the University of Chicago has recently met and approved the new curriculum which has been under advisement for the past several months. Under the new plan all entering Freshmen will be required to take four general divisional courses. If the student does not wish to attend the classes organized to present the material in these four courses he can master the subject by reading and studying by himself, with the assistance of the advisers provided by the University. It is expected that most students will prefer to attend the classes, but those who are able to do the work of the four general courses independently will be able to avail themselves of instruction in other fields of knowledge.

Beyond the requirement of the work in the four general divisional courses, or its equivalent, there is to be no uniformity in the College Division instruction. The training of the student will be shaped in the light of his high-school training and his interests and future needs. In the second year of study in the College Division the student will concentrate in two divisional fields, and may take work in the other two divisions if he desires. One of the requirements for meeting the standards of the College Division will be that the student must demonstrate his ability to express himself with clarity and accuracy in written English. Whether a student has achieved satisfactory standards in English through his high-school training, or whether he requires some informal tutoring or formal instruction will be determined on the basis of tests that are given during Freshman Week.

So far as the College Division is concerned, any student who offers two high-school courses each in foreign languages and in mathematics need take no further work in these subjects. It is probable, however, that when the Upper Divisions formulate their programs, some or all of them

will require as a prerequisite to admission a reading knowledge of foreign languages and a more extensive knowledge of mathematics than is represented by two high-school courses. The requirements of none of the Upper Divisions, however, will be such that they cannot be met by the average student. At present, the College Division curriculum contemplates that the average student will need two years to complete the work of the Division, although it will be possible for the abler students to finish their general education in one year. At the end of this period of general education, the student will be given a certificate signifying the satisfactory completion of the requirements of the college. The Bachelor of Philosophy degree will not be granted until the student completes the work in one of the Upper Divisions.

The Senate also approved recommendations that the general divisional courses be offered to large groups by the lecture method, to the extent that such a method may be wisely used. Work in other courses will be largely done in small classes. For each of the general courses, a syllabus with appropriate bibliographic material and sample examinations will be prepared and published by next October. Many of the members of the faculty are to be relieved of further instructional duty, so that they may devote all their time until next autumn organizing the new courses and preparing the syllabi and examinations. Under the plan as approved, the general examinations may be taken during one examination period or may be spread out over several periods, subject to limitation that all required examinations in the College must be passed within two calendar years after any section has been passed.

Estimates of the Committee on the College Curriculum are that the average student in the new College Division will devote forty hours a week to his education, including attendance at classes, discussion groups, laboratory work, and study.

THE Office of Education, Department of the Interior, is regularly issuing brief statements taken from the *Land Grant College Survey*. One of the most recent and most significant is the following:

> Of every dollar received by these institutions 17.8 cents are utilized to pay administrative salaries, maintain and operate buildings and grounds, and defray other general expenses. The remaining 82.2 cents are expended for strictly instructional purposes.
>
> The figures were based on the expenditures of the land-grant colleges for 1928, which amounted to $98,867,945. Of this sum, the institutions spent $17,664,663 for their overhead operating costs while $81,203,282 was expended for such items as resident instruction library, extension, experiment station and other organized research. According to the study, a number of individual colleges have much larger overhead operating costs than the average for the entire group. As a result, expenditures for the education of the students attending these institutions are correspondingly reduced.

· Editorial · Comments ·

Stand-Pat Education

EVERY year or so some politician or other berates the colleges because of alleged professorial radicalism. The latest critic attracts more than usual attention because he speaks from the innermost council chamber of one of the major political parties, is in fact one of the party's chief officers.

In a recent statement Mr. Robert H. Lucas, Executive Director of the Republican National Committee, urges the need of corralling college students into the Republican fold. Since the colleges seem to be undermining their loyalty to the Grand Old Party, he proposes that special clubs be organized throughout the country for young Republicans. He says in part:

> I think you will agree with me that there is not enough attention paid young men and women just coming of age—the new voters.
>
> The problem of educating and organizing the first voter is at once the most important and the most difficult which confronts the Republican Party.
>
> The problem is increased because of the difficulty of approach to the youth of the land, and is rendered doubly difficult to the Republican Party because of the fact that the tendencies of the young man and young woman are away from conservatism in thinking and acting, and also because the formative influences in many of our educational institutions are largely radical.
>
> It is a matter of common information and deep concern that many of our universities and colleges are literally saturated with radicalism. Moreover, the textbooks, the classroom lectures and the private conversations of a great part of our teaching force in our institutions of higher education are antagonistic to the traditional policies of the Republican Party.

Here is as pretty a statement as one could hope for of an antiquated, inadequate, and even pernicious philosophy of education. Colleges exist, in the näive judgment of Mr. Lucas, to conserve the status quo. Because the membership of the American Economics Association voted unanimously in condemnation of the Smoot-Hawley tariff they are "theorists" and "radicals." Because members of the Association and their colleagues in the other social sciences point out to their students the limitations of current economic and political theory, they are "socialists" undermining government and society.

The implications of Mr. Lucas' judgment send one back to the conception of the function of education in primitive, not twentieth-century society. Before Greek enlightenment no one conceived of education as anything but the means of transmitting tradition and custom from one generation to the next. The young early were saturated with ancient lore until their natural plasticity of intellect had been destroyed, and they accepted as ultimate truth the political, ethical, and religious baggage of their progenitors. The struggle for survival

allowed little margin for experimentation, and thinking perforce had to be banned in favor of tradition. Through the Middle Ages the same principle dominated education, even though its utility no longer existed. These centuries revolved about the magic word "discipline," the free play of the mind being continuously checked and retarded by an unwarranted faith in ancient usage and vested authority. From the Middle Ages the dogma comes down and lodges itself in the thinking of Mr. Lucas, although the magic word now becomes a phrase and reads "party discipline."

Fortunately, however, the Socratic point of view has slowly crept up upon nearsighted conservatism. "The unexamined life" Plato in the *Apology* quotes Socrates as saying, "is the brutish life." Tradition must not be accepted whole cloth. It should be taken apart, examined, studied. The student must needs be taught the "mature truth of racial experience," but if the race is to move forward, he must also be taught to think for himself.

The undergraduate comes to college with a given set of attitudes and prejudices. These he grew into and accepted unthinkingly as part of the heritage of his social group. Often they are healthy and desirable attitudes; just as often they are in need of debunking. It is the responsibility of the college to disturb the student's thinking so thoroughly that he finds himself forced to evaluate his basic relationships as a human being. This means that he must think out anew and for himself his attitudes toward religion, ethical standards, economic programs, political organizations. The gamble is that if he does not face these problems in college he never will.

Someone has recently observed that college students are the only leisure class in modern society, and as a leisure class undergraduates have an opportunity to stand up and look around that is likely not to come again until old age. The college—Mr. Lucas and his brethren to the contrary notwithstanding—is fulfilling its function only when it bombards the student's complacency, literally forcing him to review his world and his relationships to it.

A brilliant criticism of traditionalism and an equally brilliant statement of the modern, broader philosophy of education comes interestingly enough from a college president who is also a prominent Republican. Speaking last year before the New England Society, President Ernest Martin Hopkins, of Dartmouth, said in part:

> A few years ago I happened to be dining in a group of publicity men wherein a situation was being discussed about a new soap which had been developed as a by-product of a great industry. The promoters of this new product had enlisted a considerable portion of the world's supply of authorities upon soap and had retained the services of some of the greatest chemists in the world. Thereafter in the course of time they had become ready to put upon the market what they believed to be as good a soap as was then existent. The only trouble with the whole proposition was that relatively few had been persuaded to buy it. Finally one of the advertising men, a genius in his field, arose to meet another engagement, but before going away he leaned over the table and uttered these sententious words: "Well, we have got to *educate* America to use this soap."

This use of the word *ed·cate* is not an unusual one. I have seen in the last three weeks quotations in the daily papers ascribing similar use of the word *education* in various relationships. Once Bishop Cannon was said to have stated that the United States must be *educated* to prohibition; once one of the organizations opposing the Eighteenth Amendment was quoted to the effect that the country must be *educated* to be wet; most recently Mr. Franklin Wirth, from Oklahoma, testified before a committee of the United States Senate that it was the thesis of the organization he represented that the United States Senate should be *educated* to increase the duty on oil.

These are not exceptional nor exaggerated cases. As a matter of fact I think that each one of us who has a strong conviction or belief in regard to anything is likely to believe it to be the function of education to convince the rest of the universe that this particular project is worth while. There are some number of men in this group who have had experience on the governing boards of universities or colleges. I think that they would bear me out in the assertion I make that the public at large, and some business interests in particular, fail entirely to distinguish what is *the true objective of higher education, namely to examine accepted beliefs critically to find out whether or not they really are truth rather than to argue for the validity of all accepted and stereotyped beliefs.* There are a host of people in the world, and an undue proportion of these are in what we call the business world, who instinctively feel that the responsibility of the college is to say that whatever is is right rather than to seek for modifications and improvements on the present status which shall make for progress and for the ultimate good of society at large.

There can be scant comfort for Mr. Lucas in such a clear-cut definition of the function of the college as this of President Hopkins'. To counteract such subversive doctrine he will perhaps be impelled to send out more alarums and to redouble his efforts to organize his clubs.

Yet a more thorough appraisal of the situation would calm him considerably if not completely. Everyone informed about the colleges knows that the great majority of American undergraduates are as conservative as corporation counsels and aged bishops. While their contemporaries in European universities are wrangling verbally over and participating physically in the political controversies of their peoples, American students are blissfully bivouacked—to use the Woodrow Wilson big-tent figure—in their extra-curricular tents all too unmindful of the insistent problems of the modern complex world. Indeed, rather than being distraught by the state of the undergraduate mind, Mr. Lucas should rejoice that so few college students are being stimulated to the critical examination of accepted beliefs that President Hopkins urges as the *raison d'être* of the college.

The day may come when American undergraduates will be a source of worry for conservative political managers, but that day has not yet arrived. It is not likely to arrive, moreover, until the present critical evaluation of higher education leads to a clearer understanding of purpose and improved methods of instruction.

W.H.C.

··Reviews··

Rich and Informing

ESSAYS IN COMPARATIVE EDUCATION, *by I. L. Kandel.* New York: Columbia University, 1930. 235 pp. $2.50.

This is a collection of thoughtful papers and addresses upon the reasons why education is cherished in the several leading countries of the world and how they cherish it. Such a study if well done is bound to be illuminating, and this one is. Professor Kandel calls attention to the very striking fact that "the emergence of democracies since the war has tended to make the problems of Education almost universally identical. There has probably never been a period since the Renaissance when the world of education has been inspired by the same range of ideals, ambitions and aspirations." But though democracies have superseded older governments in most nations, yet the varying national characteristics have made these democracies differ each from the other, so that the effort to understand their education forces us in turn to understand the frame within which it functions. Comparative education is therefore the study of national philosophies, histories, and objectives as well as the study of school systems. It is a particularly rich and informing study just now for if one could follow and know well what has gone on and is going on in the schools of Germany since the war, or in the schools of Russia since the Revolution he would certainly see the fixities and the mutabilities of instruction in new lights.

Mr. Kandel has done more than invite us to the contemplation of what is strikingly new in the education of man. He has need to explain American education, English education, and French education in Germany and all of them to Mexico and South America. As an introduction to this absorbing subject his book is most useful. His analyses are well made and there is a dignity and seriousness to his work that is admirable. These essays upon the most absorbing of human activities since the war should have wide reading.

ERNEST C. MOORE
The University of California at Los Angeles

Official Statements

PRACTICES OF UNIVERSITIES IN GRANTING HIGHER DEGREES IN EDUCATION, *by Frank N. Freeman.* Chicago: University of Chicago Press, 1931. vii+187 pp. (Yearbook XIX of the National Society of College Teachers of Education) $1.50.

As the subtitle indicates, the major portion of this Yearbook consists of official statements from twenty institutions granting higher degrees in education. This number includes all institutions which have conferred more than twenty-six higher degrees in education during the period 1918–27. The volume also includes an account of the study of the administration and requirements of the Master's degree in education by Professor J. Orin Powers and a summary of the current practices as revealed by the twenty official statements.

Graduate study in education began in the established graduate schools which have been and still are essentially extensions of the liberal-arts colleges, but recently steps have been taken in several institutions to organize the graduate work in education as a division of the college or school of education. The principal justification of this change is that education is a profes-

sional field, and hence candidates for higher degrees should not be subject to the conventional requirements of graduate schools. The fact that in seven of the twenty institutions the higher degrees are administered in whole or in part by the school or college of education shows that the movement has gained considerable headway. This plan is not approved by a number of the leaders in the field of education, and there is considerable doubt whether an independent graduate division of education will become typical practice.

The Yearbook does not presume to answer this question. Its purpose is to present the facts in regard to the present practice. It will doubtless be generally recognized as a valuable source of information for those who have responsibility for administering higher degrees in the field of education. Although it is very difficult, if not impossible, to formulate a summary statement of the varied practices in the twenty institutions, the official statements furnish more dependable information than could have been secured by a questionnaire.

WALTER S. MONROE
University of Illinois

"*Science*"

A HISTORY OF SCIENCE AND ITS RELATIONS WITH PHILOSOPHY AND RELIGION, *by William C. D. Dampier-Whetham*. New York: Macmillan Company, 1930. xxi+514 pp. $4.00.

The book includes preliminary chapters on science in Antiquity, in the Middle Ages, and in the Renaissance. It opens the modern period with an account of the Newtonian Epoch, which is continued by chapters on physics in the nineteenth century, including chemistry, and in the last quarter of a century. There are chapters on biology in the nineteenth century and on recent developments in biology and anthropology. Two chapters deal with science and philosophy, first, as they stood to each other in the nineteenth century, and second, as they stand at present.

The work aims to cover, therefore, what is traditionally but rather indefinitely called science, with passing references to psychology and the so-called "social sciences" as these are suggested by biology or philosophy. In point of fact the emphasis is rather heavily upon physics, since this is naturally regarded as representing science in its most characteristic form, and possibly also because of the direction of the author's interest. Chemistry comes in somewhat incidentally and mainly in its more general and theoretical aspects. There is really no very definite principle for what is included or for what is excluded in such a volume. Some parts of chemistry have been closely related to physics and others have not. Some portions of biology have been inseparable from the progress of chemistry, and others have developed practically without reference to it. Psychology has often been stimulated by biology and quite as frequently by economic and political thought. And there can be no very good reason for including occasional references to anthropology and the study of religions, but excluding references to nearly all other branches of the study of civilization.

The difficulty is probably inherent in the nature of the subject. What is vaguely called science really has very little unity, and its history has so little continuity that it does not form a single connected story. Perhaps there is something that may be called the scientific point of view, but when it is reduced to what is common to all scientists, it is so intangible that it forms no real bond of connection between the results obtained in different fields. The book accordingly has little unity. There is no real transition from subject to subject except in the account of physics, where there is a degree of orderly development and the treatment is sufficiently systematic to bring it out.

For this reason the book perhaps seems

more a compilation than it really is. In the nature of the case such a work must be derived chiefly from secondary sources, but there can be no question of the breadth of the author's reading. The amount of information contained in the volume is great and the standard of factual accuracy is high. At the same time, the treatment of most subjects is so brief that it is doubtful whether a reader who does not already know a good deal of science will get more than a vague notion of what it is all about.

GEORGE H. SABINE
Ohio State University

A Useful Contribution

COLLEGE ORGANIZATION AND ADMINISTRATION, *by Floyd W. Reeves and John Dale Russell.* Indianapolis, Indiana: Board of Education, Disciples of Christ, 1929. 324 pp. $2.50.

This volume is a useful contribution to the development and formulation of the principles of organization and administration of the separate liberal arts college. Facts, largely assembled from surveys of sixteen institutions, are stated and set forth in tables and figures. The general usefulness of the book arises from the fact that the colleges surveyed are typical. Like most American colleges they were founded by a man or group fired by the home-missionary spirit. They were not founded by ecclesiastical bodies. They represent the present development and problems of most colleges in the valleys of the Missouri and Mississippi. Here, then, are statements of common problems. Here, too, are forms into which anyone may place similar facts. The unusual is not stressed. Institutional and instructional organization and control, faculty and student personnel problems, plant and finances are set forth in sixteen chapters. The table of contents and index are ample. The authors are not backward about answering questions. Being responsible only to reason they can do this quite freely. Having no sentimental interest at stake, having college and not departmental minds, they can make proposals which are rational and practically impossible and then smilingly point out the dreadful inevitables following from the impossibility. How can boards of control be reduced to seven members? How can the pupil-teacher ratio be greatly increased without definitely agreeing that the president shall be suddenly and indefinitely designated as an ex-president? Not without courage, ability, and patience. Many of the recommendations suggest contraries and alternatives. The discussion of athletics is useful, but one may not agree with the view that competitive athletics cannot be properly charged in the educational budget. So all along the way one's mind is aroused by agreement and variations from agreement.

H. M. GAGE
Coe College

A Dualism

AMERICAN SOCIETY: INTERPRETATIONS OF EDUCATIONAL AND OTHER FORCES, *by Charles F. Thwing.* New York: Macmillan Company, 1931. ix+271 pp. $2.25.

One who looks for a provocative critique of American life and education in this book, similar to that in George S. Counts's book, *The American Road to Culture*, will be disappointed. It is rather a series of essays written at different times during the last twenty years on various phases of American life, embodying the ripe wisdom of a man who for more than a generation has been a leader in American education. Perhaps the keynote of the book is struck in the opening essay on "The Best and the Worst in American Life," but the essays range all the way from a social evaluation of "The Pilgrims' Motive and Contribution" and a comparison of "The American Civil War and the Great War" to a discussion of "Ruling Ideas in American So-

ciety" and the "Growth of Institutions in American Society."

The best element in American education today, according to Mr. Thwing, is research. The worst element is superficiality, but this is associated with overemphasis upon the vocational and the prevocational. Our education fails to see that inspiration is more important than information.

American society is urgently in need of an inner moral reformation, according to Mr. Thwing. The need for such a moral rejuvenation is far greater than the need for increased intellectual dexterity and power. This is shown in many ways, but in none more than in the conditions of American family life. The obligations of the marriage bond are too easily flung aside. But Mr. Thwing finds little hope of this moral rejuvenation coming through the Church. The Protestant church in America has lacked, and still lacks, a spiritual accent and atmosphere. Its methods represent a bad religious psychology. America has been more successful in developing its education than in developing its moral and religious life.

One may well ask if the cause of this dualism does not lie in our science and education; our author ventures no opinion.

CHARLES A. ELLWOOD
Duke University

A Sad State

GOOD-BYE TO WESTERN CULTURE, *by Norman Douglas.* New York: Harper and Brothers, 1930. 241 pp. $3.00.

Western civilization is in a bad way and perhaps, probably, is getting worse. This might have been a book that would throw light upon the process. It was stimulated by reading Miss Mayo's *Mother India,* and brilliantly suggests that the West is often worse in the very things that Miss Mayo finds so bad in India, and implicitly urges saying "good-bye" and booking passage for the Orient where life is saner and sounder than in the West.

A few years ago when Spengler's *Decline of the West* was popular a friend who had been lost in the metaphysics of Spengler asked me if he were insane. In this book it is not metaphysics, but the author's psychology that hurls itself at you. There is brilliant analysis by a garrulous, racy, and intelligent old man irresponsibly trying to shock, but without a genuine alternative or program. He punctures hypocracy and interpolates wise-cracks: "Education is a State-controlled manufactory of echoes," "In the whole course of history, the most brutal enslaver of women has been Christianity"; "When did our racial superiority over them (Orientals) begin to dawn on us? When our racial intelligence began to decline?" "Let us thank our stars that women are congenitally unprincipled"; "Laziness is the hall-mark of idealism."

It would be difficult to imagine a worse book from a hitherto good writer.

HERBERT ADOLPHUS MILLER
Ohio State University

Educational Fathers

EARLY PROTESTANT EDUCATORS, *edited by Frederick Eby.* New York: McGraw-Hill Book Company, 1931. $2.25.

This book is designed to provide a corpus of sources for the student of the history of education. It comprises selections from the writings of Luther, Melanchthon, Bugenhagen, Calvin, and Knox, and excerpts from various school ordinances of the sixteenth century. A small section, six pages, entitled "Anabaptist Educational Influences" should not have been included. The "Letter of the Brotherly Union of Certain Believing Baptized Children of God" has no place in a compilation of educational writings. I am familiar with the doctrines, sermons, and activities of the Anabaptists on the Continent and in colonial New England, and I cannot admit that

this particular sect had any appreciable influence on European or early American education. With this minor exception, the collection should be very useful. The editor has performed a worthy service in bringing together these otherwise scattered materials, and in making them accessible.

ROBERT FRANCIS SEYBOLT
University of Illinois

Educational for Business

EDUCATION FOR BUSINESS MANAGEMENT, *by James A. Bowie.* London: Oxford University Press, 1930. viii+200 pp. $1.50.

This book is a clear and concise statement of the case for collegiate education for business. While written out of a background of British experience and with particular reference to British needs, it is pertinent equally for American educators and for business men. There is a curious sameness about the arguments of those opposed or apathetic to such an educational program, whether hailing from this or the other side of the Atlantic, and whether from industrial or educational circles. It is an attitude born partly of reluctance to examine new ideas, partly of the interest of vested rights, and partly of an ignorance of the nature and requirements of industrial change.

Six of the chapters develop as many steps in the orderly structure of the author's case. One summarizes the nature of the changes which are remaking the business world; the second analyzes the responsibilities of management in this new world; a third, the type of leaders needed; the fourth, the general functions and possibilities of education for management; the seventh chapter is concerned with the three basic elements out of which the industrial administration curriculum should be compounded; and the last, with the methods of instruction best suited for business educational purposes. There are two other chapters: one tracing the development of collegiate education for business in the United States, the other, the peculiarities of British industry which are responsible for its lukewarmness toward an educationally trained personnel.

Particular interest attaches to the author's plan of three basic elements of a business curriculum. The first element consists of certain background or "first-year" subjects, such as the history of modern industry, political science, sociology, economics, industrial psychology, and industrial management. The second year is to be devoted to the tool subjects—general accounting, cost accounting, business statistics, industrial finance, factory and commercial law, and English reports and correspondence. These constitute the second element. The third-year subjects, comprising the third element, are the operative subjects—industrial efficiency, industrial relations, works organization and management, marketing, and the like.

In essence, this plan is much like that proposed several years ago by Marshal. It has the merit of being both comprehensive and logical, with a seemingly apt sequence of subjects. Nevertheless, there lurks the suspicion in the minds of certain students of higher education for business that it may not be the most effective pedagogical arrangement. Certainly, the experience of selected colleges of commerce operating on the four-year plan has been that several different types of courses—basic, tool, and possibly operative—may be taught effectively at the same time. While less logical, this later arrangement seems to have certain advantages by way of student motivation. These are matters that will have to be worked out in the crucible of experience.

The book is well written. The style is clear, direct, and simple. The author has a good deal to say, and does so effectively and without the waste of a single word.

JAMES H. S. BOSSARD
University of Pennsylvania

In the Lay Magazines

"SOS from the Colleges," by H. Alexander Smith, *Forum*, May, 1931.

The educational pyramid is suffering from an abnormal thinning in the middle, and the weight of the graduate school is pressing down more heavily than ever before. The question arises, Will the college be absorbed by the school or the university? This author feels that there must be a line drawn between the area of preparatory work and college and between college and advanced training in the graduate school.

The college is not the restricted area of the purely intellectual life of the university with its purely intellectual development. It must give perspective to life.

To accomplish some of the much-needed changes among the colleges and the factors which have tended for their weakening, their becoming the thinning layer in the educational pyramid, Mr. Smith advocates the weeding out of the competitive idea in higher education, and a change in faculty personnel and morale by the importation of the English tutorial plan with its consequent gift of stability and permanence.

"The Rich Curriculum," by Margaret Emerson Bailey, *Scribner's*, May, 1931.

Will the riches of the courses in the educational menu cause mental indigestion? Will the child's mind reach a state of mental exhaustion from satiety? The present plan of enriching the curriculum has resulted in an overcrowding of space and time, and consequently there exists a breathless state while the pupil gains a smattering of everything. The schools of today are making their students amateurs in everything.

"Radio: Dollars and Nonsense," by H. V. Kaltenborn, *Scribner's*, May, 1931.

This timely article deals with the difficulties which educational institutions encounter when they attempt educational

***Three* McGraw-Hill Books in the field of Education**

***Strebel and Morehart's* The Nature and Meaning of Teaching**

By RALPH F. STREBEL, Assistant Professor of Education, Teachers College, Syracuse University, and GROVER C. MOREHART, Associate Professor of Education, Teachers College, Syracuse University. 266 pages, 5½x8, $2.50.

"The authors of this book have succeeded in producing a volume which is really worth while. The material is well arranged and gives a very good oversight of the development of the modern philosophy of education, showing step by step, although briefly, how it has come down to us from Socrates and his successors."
From a review in *Industrial-Arts Magazine*

***Mann's* Objective Type Tests in Engineering Education**

By CLAIR V. MANN, Professor of Engineering Drawing and Descriptive Geometry, Missouri School of Mines and Metallurgy. 122 pages, 6x9, illustrated, $2.75.

"A careful perusal of the book suggests painstaking, thorough work, and data invaluable for those engaged in engineering education and for anyone interested in experimental techniques for the improvement of examinations."
From a review in *The High School*

***Jones'* Principles of Guidance**

By ARTHUR J. JONES, Professor of Secondary Education, School of Education, University of Pennsylvania. 385 pages, 5½x8, $3.00.

"The work ranks with the best that have so far appeared and cannot be disregarded when there is a question of selecting a classroom text."
The Loyola Educational Digest

Send for copies on approval

McGraw-Hill Book Co., Inc.
370 Seventh Avenue
New York

broadcasting. Unless there is a system of government licenses for owners of radio sets, private endowment will be the only solution. Mr. Kaltenborn declares, "We can and should avoid the crippling restrictions of complete government control and the unhappy alternative of abject subservience to the profit motive."

"College Graduates and Civilization," by Mary Lee, *Harpers*, May, 1931.

"The college graduates of the world will not cease to exist merely because the graduates of today have one and five-tenths children, any more than the Catholic priests of tomorrow will cease to exist because the Catholic priests of today have none." The race of college graduates is not a self-perpetuated one and so cannot die out. This is the answer which this writer has for the arguments that women's colleges are causing race suicide. The graduates of women's colleges may not be doing the propagating, but they are doing the influencing, for graduates of women's colleges are the ones who are holding the important posts which have fallen to women.

"In the Driftway," by the Drifter, *Nation*, April 15, 1931.

Higher education has suffered countless hard knocks this year. In a flippant but soothing style, an editorial writer glosses over the serious implications of the criticisms which have been advanced, says that the extra-curricular learning justifies the existence of the American college, that

the American university should continue to be open to all who come. Every human being should have at least one opportunity to lead the remote and academic existence which the campus provides . . . to appease the serious-minded investigators, remove the label Higher Education from the college gate. Put up instead a line from the early Masefield: "The days that make us happy make us wise."

FRANCES KIRKPATRICK

America's foremost authority on the teaching of reading,

ARTHUR I. GATES

summarizes the outcome of all his investigation and research in his new book,

INTEREST AND ABILITY IN READING

Major problems of teaching reading are solved and suggestions for improvement in the teaching of reading presented, all interpreted in the light of practical cases and situations of the teacher's everyday work.

Illustrative material and examples have been taken from THE WORK–PLAY BOOKS, the new series of readers, by Dr. Gates and Dr. Miriam B. Huber.

$1.50

THE MACMILLAN COMPANY

Boston Chicago New York Dallas Atlanta San Francisco